anxp
NH
1
C15
v.25
no.3

No. 3 MARCH, 1918 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

Several belligerent nations
of Europe use

Cyko Paper

for many reasons:

It is coated on the best raw paper procurable, which means *prints that will last.*

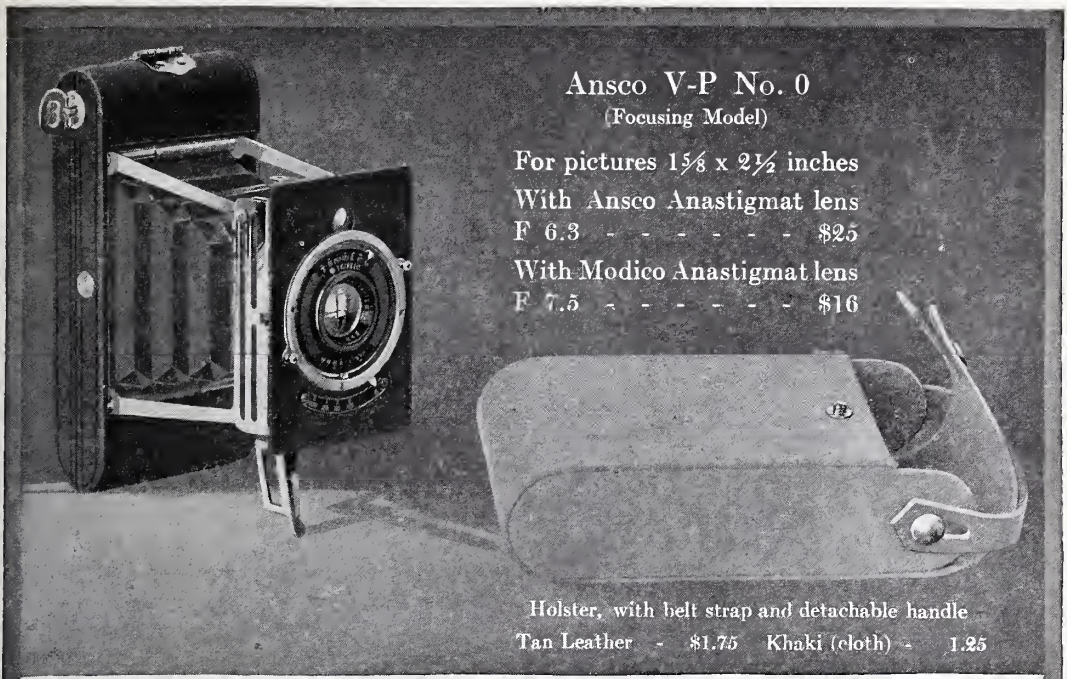
It has the right scale of gradation and produces a well-balanced print from all kinds of negatives.

No negative is too poor to yield a satisfactory print on CYKO for map purposes; a failure may mean a battle lost or a fearful sacrifice of life.

Belligerents cannot afford to experiment—hence they use

Cyko

Ansco Company
Binghamton, N. Y.


Ansco V-P No. 0
(Focusing Model)
For pictures 1⅝ x 2½ inches
With Ansco Anastigmat lens
F 6.3 - - - - - - $25
With Modico Anastigmat lens
F 7.5 - - - - - - $16
Holster, with belt strap and detachable handle
Tan Leather - $1.75 Khaki (cloth) - 1.25

The Story of the War

will be most vividly told by the pictures that will be made at the front. Each one of Uncle Sam's Boys is eager to make intimate pictures of his camp life tell the story of "his bit."

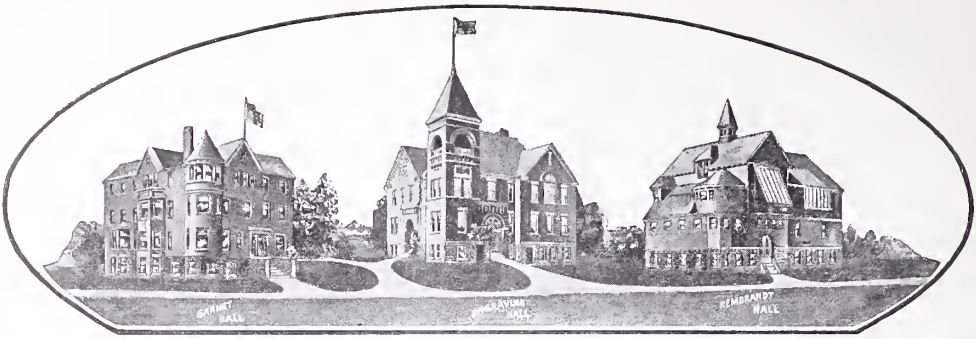
The Ansco V-P No. 0

will add a wholesome pleasure to the soldier's routine by enabling him to make pictures that will tell his story *better and quicker than words.*

At home, too, there are countless stories you can record for him in ANSCO pictures.

Catalog at your dealers', or on request from

Ansco Company, Binghamton, N. Y.



"Uncle Sam" Wants Photographers

Our graduates hold high commissions in both the military and civil service of the United States Government.

The largest and best school of its kind on the globe.

Many lucrative positions in the best studios of the country await men and women who prepare themselves NOW.

Established 24 years. Write for catalog TODAY.

ILLINOIS COLLEGE OF PHOTOGRAPHY

Box CC, 907 Wabash Avenue **Effingham, Illinois**

The Amateur Photographer

AND

Photographic News

PUBLISHED WEEKLY

The Premier Photographic Journal of the world. Edited by F. J. Mortimer, F.R.P.S.

Annual Subscription - $3.65

Magnificent illustrations in colors *every week* of the works of the world's best photographers.

Technical, Pictorial and Practical Articles.

A most important feature for the Beginner is

THE NOVICE'S NOTE BOOK

Send a 2-cent postcard for a free specimen copy.

OFFICE: 52 LONG ACRE, LONDON ENGLAND

AMERICAN FIRMS

desirous of creating and extending trade with

ITALY

now and after the war should advertise in the leading Italian Photographic Monthly—

"IL CORRIERE FOTOGRAFICO"

PUBLISHED IN MILAN

Advertising rates and specimen copy free from the sole British and American Agents.

NEYROUD & SONS, LIMITED

Foreign Advertising Specialists

REGENT HOUSE, KINGSWAY, LONDON, ENGLAND

THE

British Journal of Photography

The Recognised Organ of Professional and Amateur Photographers.

A weekly photographic paper of reliable information and instruction. The oldest in the world, but the most up-to-date. Noted for its sound practical help in all branches of photographic work. The journal which readers keep and refer to again and again.

SPECIMEN COPY FREE FROM THE PUBLISHERS

Henry Greenwood & Co., Ltd.

24, Wellington Street, Strand, London, England

☞Postcards must be stamped two cents

American Agent: George Murphy, Inc., 57 E. 9th Street, New York

Monthly Bargain List

LENSES

2½-inch Dallmeyer M. P., f-3.8 in focusing barrel, like new, list $28.00 ..... now $20.00
3¼x4¼ Zeiss Kodak Anastigmat, 5-in. focus, f-6.3, in Compound shutter, new, list $36.00 ..... now 23.75
2¼x3¼ Kodak Aanastigmat, 4¼-in. focus, f-7.7, in Kodak Ball Bearing shutter, new, list $15.00 ..... now 9.00
3¼x4¼ Goerz Dagor, 4¾-in. focus, f-6.8, in Koilos shutter, like new, list $52.00 ..... now 34.50
3¼x4¼ Goerz Dagor, 4¾-in. focus, f-6.8, in Optimo shutter, like new, list $49.50 ..... now 32.50
3¼x5½ Cooke Kodak Anastigmat, 6¾-in. focus, f-6.3, in Compur shutter, new, list $43.50 ..... now 30.00
3¼x4¼ B. & L. Zeiss Tessar, Series IC, 5½-in. focus, f-4.5, in barrel, like new, list $41.00 ..... now 30.00
3¼x5½ B. & L. Zeiss Tessar, 6 11/16-in. focus, f-6.3 in Compound shutter, like new, list $51.00 ..... now 33.50
3¼x5½ Wollensak Velostigmat, Series I, 6½-in. focus, f-6.3, in Optimo shutter, perfect condition, list $37.00 ..... now 23.00
3¼x5½ Voigtlander Dynar, 6½-in. focus in cells, new, list $25.00 ..... now 17.50
5 x7 B. & L. Zeiss Tessar, Series IIB, 7 1/16-in. focus, f-6.3 in barrel, like new, list $51.00 ..... now 37.50
4 x5 or 3¼x5½ Cooke Telar, 13½-in. focus, f-7, in barrel, like new, list $42.00 ..... now 30.00
5 x7 Versar Portrait and View, f-6, in Regno shutter, new, list $20.00 ..... now 13.75
5 x7 Goerz Dagor, 7-in. focus, f-6.8, in Optimo shutter, like new, list $66.00 ..... now 43.50
5 x7 B. & L. Tessar, Series IC, 7¼-in. focus, f-4.5, in barrel, like new, list $58.50 ..... now 48.00
5 x8 Goerz Doppel-Anastigmat (Dagor) 8¼-in. focus, f-6.8, in barrel, perfect condition, list $62.00 ..... now 37.50
6½x8½ Wollensak Vinco Anastigmat, 9½-in. focus, f-6.8, in Optimo shutter, new, list $45.00 ..... now 29.75
6½x8½ Goerz Dagor No. 5, 10¾-in. focus, f-6.8 in barrel, perfect condition, list $91.00 ..... now 60.00
6½x8½ Wollensak Extreme Wide Angle, in barrel, new, list $17.00 ..... now 10.00
6½x8½ Wollensak Velostigmat Wide Angle, f-9.5, in barrel, new, list $34.00 ..... now 21.25
6½x8½ B. & L. Zeiss Protar, Series V, f-18, wide angle, in barrel, like new, list $25.00, now 16.50
8 x10 Wollensak Velostigmat Wide Angle, f-9.5, in barrel, new, list $50.00 ..... now 29.25
8 x10 Wollensak Rapid Rectilinear, in Regno shutter, like new 15.00
8 x10 B. & L. Plastigmat, 13½-in. focus, f-6.8, in Compound shutter, perfect condition, list $110.00 ..... now 65.00
8 x10 Wollensak Extreme Wide Angle, in barrel, new, list $23.00 ..... now 14.25
8 x10 Scientific Wide Angle Anastigmat (extreme) ..... now 14.75
10 x12 B. & L. Zeiss Portrait Unar, 18-in. focus, f-4.5, in barrel, with diffusing device, perfect condition, list $276.00 ..... now 175.00

CAMERAS AND KODAKS

Ernemann Vest Pocket with Focal Plane shutter and Auto shutter, Detectiv aplanat lens, f-6.8. perfect condition, list $60.00 ..... now 32.50
2½x4¼ Eastman Kodak, fitted with B. & L. Zeiss Tessar IIB lens, f-6.3, Compound shutter, like new, list $55.00 ..... now 36.00
3¼x4¼ Auto Graflex with f-4.5 IC Tessar lens and case, film pack adapter, like new, list $97.00 ..... now 70.00
3¼x4¼ Eastman Kodak, fitted with B. & L. Zeiss Tessar lens IIB, in Compound shutter, like new, list $60.00 ..... now 39.00
3¼x4¼ Ansco, No. 6, fitted with Goerz Dagor f-6.8, in Optimo shutter, like new, list $59.00 ..... now 36.50
3¼x5½ 3A Eastman Kodak, latest model, autographic back, range finder, etc., fitted with Zeiss Kodak f-6.3, perfect condition, list $72.00 ..... now 48.50
3¼x5½ Premo Film-Plate Special, with Zeiss Kodak anastigmat f-6.3 lens, Compound shutter, case, like new, list $69.00 ..... now 40.00
3¼x5½ Graflex, with 5x7 B. & L. Zeiss Tessar f-4.5, like new, list $137.00 ..... now 90.00
We have three 6½x8½ Century View Cameras, brand new, complete with case and holder at 15.00
Also five new 6½x8½ Empire State No. 2 View Cameras, complete with case and holder at 21.50
2 Movette Cameras, list $29.00 ..... now 16.50
2 Movette Projectors, list $55.00 ..... now 27.50
1 Movette Printing Machine, list $65.00 ..... now 40.00

WATCH THIS PAGE EVERY ISSUE

We can list only a small part of our bargains, due to limited space. If you do not find what you are looking for in the above list, drop us a card and we will quote bargain prices on what you want.

HENRY G. de ROOS

(FORMERLY MISSION PHOTO SUPPLY CO.)

88 Third Street — San Francisco, Cal.

The Largest Camera Exchange on the Pacific Coast

An American Book on American Photography

PICTORIAL PHOTOGRAPHY

ITS PRINCIPLES AND PRACTICE

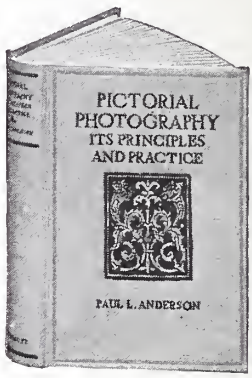
By PAUL L. ANDERSON, E. E.
The Well Known Photographic Writer and Authority

EVERY photographer who wishes to do more than merely "push-the-button" will find discussed in this volume the very points on which he wants helpful suggestions and definite instructions. The author, who is a well known contributor to photographic magazines, presents the subject from a standpoint not too elementary on the one hand nor ultra-technical on the other. Extremely elementary instructions have been omitted. In consequence the reader immediately begins to secure just the information needed to help him carry on his work to success. In a remarkably interesting and informative manner Mr. Anderson reveals the artistic possibilities of photography and also explains the scientific principles upon which success must depend. A thorough understanding of these is absolutely necessary to any photographer who wishes to develop and grow in his desire for photographic expression. As a result this splendid volume is a thorough exposition of the ART, SCIENCE and PRACTICE of photography.

Those who wish information on Color Photography, Photography by Artificial Light or Motion Picture Photography will find these subjects very adequately handled in the special chapters devoted to them.

The illustrations are a feature. In addition to the 35 explanatory line cuts there are 23 halftones of photographs by leading pictorial photographers, showing the artistic results so easily achieved by the use of different printing mediums.

302 pages Large octavo $2.50 net Postage 15c extra



CONTENTS

Part I—Apparatus

The Camera
The Lens
The Plate
Exposure and Development
Miscellaneous Apparatus

Part II—Negative Modifications

Manipulation of Negatives
Enlarging

Part III—Printing Methods

The Ideal Medium
Discussion of Various Mediums
Technique of Platinum
Technique of Carbon
Technique of Gum
Technique of Gum-Platinum
Technique of Oil and Bromoil and of Transferring
Technique of Photogravure

Part IV—Color

Desirability of Color in Photography
Technique of Color Photography

Part V—Miscellaneous

Photography by Artificial Light
Motion Picture Photography
Conclusion

FOR SALE BY

MARSH & COMPANY

712 Market Street **(The Trade Supplied)** **San Francisco, Cal.**

Our Clubbing Offers

Canadian and Foreign Postage Rates vary with the different Magazines

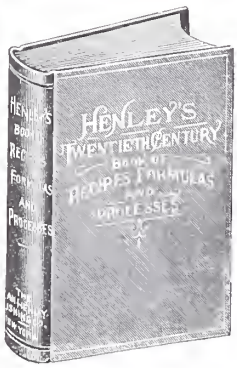
		Our Price
CAMERA CRAFT	$1 00	$1.50
Sunset Magazine	1 50	
CAMERA CRAFT	$1 00	$1.50
Boys' Life	1 00	
CAMERA CRAFT	$1 00	$2.00
With any one of the following		
With any two of the following		$3.15
Amateur Photographer's Weekly	1 50	
Little Folks	1 50	
McClure's Magazine	1 50	
Modern Priscilla	1 25	
Physical Culture	1 50	
CAMERA CRAFT	$1 00	$2.10
With any one of the following		
American Boy	1 50	
Illustrated World (Technical World)	1 50	
The Photographic Journal of America	1 50	
CAMERA CRAFT	$1 00	$2.25
With any one of the following		
American Magazine	1 50	
Bulletin of Photography	1 50	
Delineator	1 50	
Etude (for music lovers)	1 50	
Metropolitan Magazine	1 50	
Woman's Home Companion	1 50	

		Our Price
CAMERA CRAFT	$1 00	$2.50
With any one of the following		
Abel's Photographic Weekly	2 00	
American Photography	2 00	
Everybody's Magazine	1 50	
Photo Era	2 00	
Red Book	2 00	
CAMERA CRAFT	$1 00	$2.75
Camera	2 00	
CAMERA CRAFT	$1 00	$3.10
With any one of the following		
Collier's Weekly	2 50	
Motor Boat	2 00	
Review of Reviews	3 00	
Photo-Miniature	3 00	
CAMERA CRAFT	$1 00	$3.50
With any one of the following		
Current Opinion	3 00	
House and Garden	3 00	
Outing Magazine	3 00	
World's Work	3 00	
CAMERA CRAFT	$1 00	$5.25
International Studio	5 00	

CAMERA CRAFT

Claus Spreckels Building **San Francisco, California**

You Need This Book



WOULD it mean anything to you to have, right at hand, a book that would give you practically every worth while recipe and process known to photography, and to every other branch of the useful arts and sciences?

Henley's Book of Formulas, Recipes and Processes contain over 10,000 selected chemical, photographic, technical, industrial and household recipes; a book that gives thousands of recipes for the manufacture of valuable articles for every-day use and tells of thousands of ways of making money, including hundreds of so-called trade secrets known to almost every business.

This is one of the most valuable reference books that has ever been published. It will supply you with information necessary on absolutely every recipe, formula and process known to every trade and science in the world.

Among the Formulas given are

Toilet Article Formulas
Recipes for Every Disease
Veterinary Formulas
Fertilizing Recipes
Bleaching Recipes
Etching and Engraving Recipes
Recipes for Glass Making
Paper Making Recipes
Recipes for Ointments
Mirror Making Formulas
Paint Making Formulas
Gilding Recipes
Galvanizing Recipes
Bronzing Recipes
Tinning Recipes
Silvering Recipes
Recipes for Adhesives
Recipes for Plating and Enameling
Cleaning Processes
Soap Making
Leather and its Preparations
Recipes for Alloys
Recipes for Solder
Photographic Formulas
Shoe Dressing Recipes
Stove Blacking Recipes
Rust Preventive Recipes
Recipes for Lubricants
Recipes for Oils
Recipes for Dyes, Colors and Pigments
Recipes for Dryers
Ink Recipes
Recipes for Artificial Gem Making
Jeweler's and Watchmaker's Recipes
Household Formulas
Waterproofing Recipes
Fireproofing Recipes
Recipes for Cements, Glues Mucilages
Fireworks Recipes
Recipes for Eradicators
Alcohol and its Uses
Recipes for Essences and Extracts
Dentifrice Recipes
Cosmetic Recipes
Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers
Depilatories

And many thousand more in the Arts and Manufactures—all modern and up-to-date—applicable to present-day needs and requirements.

PRICE, (Postage prepaid) **$3.00**

FOR SALE BY

MARSH & COMPANY

712 Market Street (The Trade Supplied) **San Francisco, Cal.**

Emergol

METOL'S RIVAL

1 Oz. - - - - $ .70
4 " - - - - - 2.60
8 " - - - - 5.10
16 " - - - - 10.00

FRANKLIN IMPORT & EXPORT CO.
220 BROADWAY (INC.) NEW YORK

PALLADIOTYPE SEPIA

Simplest process ever invented — EXPOSE, DEVELOP, WASH—the result is an exquisite print in sepia.

PLATINOTYPE MATT SEPIA (Y & T)

SATISTA BLACK, matt surface. Nothing like it!

PRINTS MAILED ON REQUEST.

WILLIS & CLEMENTS
1814 Chestnut Street **Philadelphia, Pa.**

Beautiful Scenes, of a beautiful land. Three 5x7 prints, 35 cts. One, 15 cts. prepaid.
SMITH'S PHOTO STUDIO **Colville, Wash.**

Expert Advice for the Amateur Photographer. Send 2-cent stamp for particulars to **Charles F. Rice, P. O. Box 517, Mamaroneck, New York.**

30 DIFFERENT MAGAZINES. All late issues. Yours for only 25c. prepaid. Great help in teaching. Satisfaction guaranteed.
EASTERN ED. BUREAU :: **New Egypt, N. J.**

Learn PROFESSIONAL PHOTOGRAPHY

Big openings everywhere for men and women. Your opportunity. Anyone can learn in a few weeks.

EARN $35 TO $100 A WEEK

in a business of your own. We teach everything by actual practice in fully equipped, up-to-date studios. Day or evening classes.

ENORMOUS DEMAND FOR STUDIO PORTRAITURE

Experts train you. Easy terms. Special Offer NOW. Call or write for valuable new booklet—free. State if interested in professional or motion-picture photography.

E. BRUNEL, DIRECTOR, OPERATING 18 STUDIOS.
N. Y. INSTITUTE OF PHOTOGRAPHY
Dept. 63 **141 West 36th St., New York City**

FIRST-CLASS TINTING IN WATER COLORS AND OIL
Miss May Ottnat, 514 Hill Street, San Francisco, Cal.
Telephone Valencia 1606.

Get rid of what you do not need for something you do! **LENSES** **I buy, sell and exchange lenses and all other good PHOTOGRAPHIC APPARATUS** Repairing also done.

Let me quote you prices, or on **ANYTHING** else wanted —backgrounds, etc,, before buying elsewhere—*it will pay you.* **Real bargains** constantly on hand and in sight.

MOVING PICTURE MACHINES SOLD ON EASY PAYMENTS

Send for catalogue and particulars.

RALPH J. GOLSEN 5123 Kenmore Ave., Chicago

$9.50 CAMERA VALUE $7.75 Anseo Vest Pocket. From factory to you. Takes pictures 2¼x3¼. Rectilinear lens with shutter speeds to 1-100 second. Also used photographic apparatus at bargain prices. Expert repairing.
Address Mail Order Dept.
FREDERIC JOHNSEN
FOREST PARK, ILLINOIS

Send Us the names of your friends interested in photography. We want to send them a sample copy of :: :: :: :: :: ::

CLAUS SPRECKELS BLDG.
SAN FRANCISCO, CAL.

Camera Craft

Steadman's Unit Photography and Aabameter

DEAR MR. STEADMAN:

"If you will make allowance that I am merely an amateur I shall be glad to have you see the enclosed prints which represent my first efforts with the Aabameter. I believe I am getting your point of view and the further along I get with the work the more I believe that you have eliminated the 'best guess' system and have substituted a strictly scientific system for making exposures."

Yours very truly,
(Signed) J. H. LINDENBERGER.

Your dealer can get the Aabameter ($1.00 loaded) from G. Gennert, New York, Chicago and Los Angeles, and the book "UNIT PHOTOGRAPHY" from the publishers, D. Van Nostrand Co., 25 Park Place, New York.

DATA FOR ILLUSTRATION: The stop used required one second to take a "One Actino" brightness subject. This subject measured "Four Actinos," so one-fourth of one second, or a quarter second, was given.

WANTED

FOR THE

ORDNANCE DEPARTMENT

OF THE ARMY

TO SERVE IN THE UNITED STATES

THOUSANDS of workers are urgently needed in the prosecution of the war. The actual fighting forces would be powerless without an efficient civilian army behind them.

IT IS YOUR DUTY TO SERVE THE GOVERNMENT, AND AT ONCE

CLERICAL POSITIONS

2,000 stenographers and typewriters, men and women, $1,100 to $1,200 a year.

2,000 typewriter operators, men and women, $1,100 to $1,200 a year.

2,000 general clerks, men and women, $1,100 a year.

500 index and catalogue clerks, men and women, $1,100 to $1,200 a year.

200 clerks qualified in business administration, $1,200 to $1,500 a year.

300 schedule clerks, men and women, $1,400 to $1,600 a year.

300 production clerks, not more than $1,500 a year.

200 clerks qualified in statistics or accounting, $1,100 to $1,800 a year.

100 statisticians, $1,800 a year.

100 multigraph operators, men and women, $1,000 to $1,200 a year.

TESTING POSITIONS

200 engineers of tests of ordnance material, $1,500 to $2,400 a year.

200 assistant engineers of tests of ordnance material, $1,000 to $1,500 a year.

MECHANICAL TRADES POSITIONS

2,500 machinists, $4.00 a day.

500 machine operators, $2.75 a day.

200 drop forgers, $5.75 a day (piecework).

300 tool makers, $4.50 a day.

Large numbers in practically all other trades.

DRAFTING POSITIONS

500 mechanical draftsmen, $800 to $1,800 a year.

50 gauge designers, $2,000 to $3,000 a year.

100 apprentice draftsmen, $480 a year.

INSPECTION POSITIONS

300 inspectors of small-arms ammunition, $1,500 to $2,400 a year.

100 inspectors of artillery ammunition (high-explosive shell loading), $1,500 to $2,400 a year.

100 inspectors of artillery ammunition (forgings), $1,500 to $2,400 a year.

100 inspectors of artillery ammunition (ballistics), $1,500 to $2,400 a year.

300 inspectors of field artillery ammunition steel, $1,500 to $2,400 a year.

300 assistant inspectors of field artillery ammunition steel, $3.50 to $5.00 a day.

500 inspectors of small arms, $1,500 to $2,400 a year.

100 inspectors of material for small arms, $1,000 to $1,800 a year.

100 assistant inspectors of cannon forgings, $1,500 to $2,400 a year.

100 assistant inspectors of finished machine parts, $1,500 to $2,400 a year.

100 assistant inspectors of gunfire control instruments, $1,200 to $1,500 a year.

50 assistant inspectors of steel helmets, $1,000 to $1,800 a year.

50 assistant inspectors of cleaning and preserving materials, $1,000 to $1,800 a year.

400 inspectors and assistant inspectors of powder and explosives, $1,400 to $2,400 a year.

Salaries named are the usual salaries at entrance. Higher or lower initial salaries may be paid in exceptional cases. Positions paying salaries higher than those named are usually filled through promotion.

Men only, unless otherwise specified.

For further information apply to the representative of the United States Civil Service Commission at the post office or customhouse in any city, or to the Civil Service Commission, Washington, D. C. Except for the positions of stenographer and typewriter, typewriter operator, multigraph operator, and general clerk, applicants are not assembled for a written examination, but are tested principally upon their education, training, and experience, as shown by their applications and corroborative evidence.

JOHN A. McILHENNY,

President, U. S. Civil Service Commission,

Washington, D. C.

Form 2206
Dec., 1917.

6—5704

"For the Duration of the War"

this magazine places at the disposal of the government whatever advertising space it may require. This is Camera Craft's contribution toward the country's success

LET US MAKE YOUR
PHOTOGRAPHIC POSTCARDS

All Styles and Finishes
Black and White, Sepia, Blue, Copper
Also Hand-Colored for
SOUVENIR, LOCAL VIEW, ADVERTISING
WE WANT YOUR BUSINESS!
PHOTOGRAPHIC APPLIANCES CORPORATION
Photo-Finishing for the Trade
116 South 4th Street Minneapolis, Minnesota

YOU MAY BE A GOOD JUDGE, BUT
SCHEIBE'S MONOTONE FILTER
Indicates instantly how every color and light value of a scene or object will be rendered in the finished print **before** taking the picture. Guaranteed reliable. Fits the vest pocket—always ready.
PRICE, $1.00
Geo. H. Scheibe 1263 N. Normandie Ave. Los Angeles, Cal.

STOP!! STOP!!
Our New No. 19 Bargain List is now ready, Contains startling values in Cameras, Lenses and photographic supplies, Imported Ica and Butcher Cameras. Headquarters for CYKO paper.
WRITE TO-DAY FOR FREE COPY
New York Camera Exchange 109-11 Fulton St. New York, N. Y.

"BRITISH JOURNAL ALMANAC"
1918
Contains a fund of valuable photographic information —tables, formulæ, etc., making it the photographer's daily companion.
PRICE } Paper edition 75c.; Cloth edition $1.50. Postage extra, according to zone.
American Agents:
GEORGE MURPHY, Inc. 59 East 9th St., New York City

No 2 HARVEY EXPOSURE METER
PRICE $1.25
For Kodaks-Graflex and all Cameras
Ask Your Dealer or Write
G. L. HARVEY
105 S. DEARBORN ST. CHICAGO

NEW IDEAS, NEW METHODS, BETTER PHOTOGRAPHS, MORE MONEY. Daddy Lively's way taught by a rapid method. Complete course for beginners opens in January and closes in June. Post Graduate work for professional photographers any time during the session. Write for catalogue and information. **Southern School of Photography, McMinnville, Tenn.**

Bathing Girl Fotos Free SPECIAL—Your choice of any pose in October Camera Craft, pages 413-415, with your first order. Real fotos taken at Neptune Beach, 3¼x5½, 4x6 and 5x7. Discount to dealers. Two choice samples, 6c.
C. Y. HALSEY 1830 Nason St., Alameda, Cal.

FILM ENVELOPES for amateur finishing. Write for samples.
Wesley Andrews, Printer, Baker, Oregon.

INTRODUCE US TO YOUR FRIENDS

WE will be pleased to send a free, postpaid sample copy of CAMERA CRAFT to any person whose name and address is submitted to us by a reader. Kindly send us the name and address of your friends who are interested in photography and we will earn you their thanks. You will have our thanks as well. In this way you can help to increase the wide circle of usefulness which Camera Craft enjoys.

Just Drop Us a Card Containing the Names and Addresses of Your Friends Interested in Photography

CAMERA CRAFT
CLAUS SPRECKELS BLDG.
SAN FRANCISCO

Please Mention Camera Craft when Corresponding with Advertisers.

PREPARED ESPECIALLY FOR COLORING PHOTOGRAPHIC PRINTS

PROBUS MANDEVILLE PHOTO OIL COLORS

PRODUCE BEAUTIFUL TONES OF MOST PLEASING DELICACY

PERMANENT—TRANSPARENT—ECONOMICAL

SIMPLICITY

is the keynote of

PROBUS-MANDEVILLE PHOTO OIL COLORS

These brilliant and permanent colors are easily applied, blend perfectly and may be changed as desired without injury to the surface of any print. No special artistic skill is required to obtain beautifully colored prints by this method, in fact no knowledge of coloring whatever is necessary. The work is interesting, enjoyable and profitable.

No. 0 Set complete, containing ten colors in individual pans with color sticks and complete instructions $1.00

ALL DEALERS

WOLFF & DOLAN
MANUFACTURERS
220 Post Street San Francisco

CARMICHAEL'S

CAMERA AND LENS EXCHANGE
111 Summer Street Boston, Mass.

Strictly a Gentleman's Outfit

No matter how high grade a connoisseur, or in plain United States a "critical judge" you are, we call to your attention the following, viz: 1 4x5 Auto Graflex (revolving back), long focus, used, but in A1 condition, equipped with genuine Carl Zeiss IC Tessar f-3.5, 8¼ inches focus, a Jena glass color filter, also a genuine Carl Zeiss Quadruple Protar, single elements, approximate focus, 19¼ in., 16 in., 14 in., 11½ in.; you can easily obtain a Zeiss catalog and acquaint yourself of the possibilities of this one grand outfit, including new model Graflex roll film holder, Graflex plate magazine and Graflex film pack adapter, the price $405.00. Also one "Icarette", model C, genuine Carl Zeiss IC Tessar, $100.00; 1 Ica "Ideal" model A, genuine Carl Zeiss Double Protar, f-6.3, 6 holders, adapter, case, set of KI, KII, KIII Wratten & Wainright color filters in elegant silk lined morocco pocket case, folding lens hood, etc., $125.00; one Newman & Guardia Special "Sibyl", latest model, genuine Carl Zeiss f-4.5 "Tessar", 12 holders, adapter, case, etc., $150.00; 1 Home Portrait Graflex, absolutely new, with 9¾ in. Steinheil "Triplar", f-3.8 lens, a wonderful instrument, with case, the price, $300.00. Remember, if you are in the connoisseur or "critical judge" class, you owe it to yourself to get in touch with us. Remember also, if you please, we issue no so-called bargain lists and use as little printer's ink as possible, but we have, for over twenty years, always had the goods in Boston, Mass., since 1898.

Back Numbers Wanted

THE requests of subscribers for back numbers to fill out their files, for binding, make us short of certain numbers. These we will list each month and those having back numbers they do not require should watch this advertisement each month. We want:

May	**1900**	**August**	**1900**
June	**1900**	**February**	**1904**
July	**1900**	**March**	**1904**

Send us, during this month, only such issues as are listed above and be sure that the reading pages and frontispiece are complete. In return we will extend your subscription eighteen months for an issue of 1900, seventeen months for an issue of 1901, sixteen months for an issue of 1902 and so on. Mark the wrapper plainly:

Sub. Dept. CAMERA CRAFT,
Claus Spreckels Bldg., San Francisco, Cal.

We are prepared to furnish complete files of this magazine, beginning with the first issue, that of May, 1900, as well as any of these issues separately as may be wanted. For issues published within the past five years there will be no increase in price, but for earlier issues an advance must be charged to cover the expense and trouble of maintaining the supply.

Back Numbers Supplied

Motax

THE BEST INTENSIFIER

ONE SIMPLE SOLUTION

Strengthens the negative without losing the quality in halftones and high lights, rendering a negative of exquisitive gradation and printing quality.

For Sale by All Dealers

If you cannot procure it from yours remit 50 cts. and we will send a bottle to your address by prepaid express.

Kirk, Geary & Co.

Sacramento :: California

All Mail Orders Filled the Same Day Received

Agents for all makes of Cameras Papers and Products

Enjoy the Pleasure

of having your orders filled promptly and fully with fresh goods at the right price. All mail orders get the same prompt attention, be they large or small. We must please you and we will. One trial will convince.

Autochrom Plates and Accessories for Color Photography

Professional Commercial Enlarging Cyko Papers Chemicals

The Wilton Co.,

"Pop" Wilton Prop. and Mgr.

717 MARKET STREET SAN FRANCISCO, CAL.

Tel. Kearny 2489

"Central Special" Comet and Home Portrait Plates
California Card Co's and Collin's Mounts and Folders

Cramer Plates—A Full Line

ARTISTIC

LANTERN SLIDES

To introduce my Quality lantern slides and Artistic Coloring, I will for a short time make the following exceptional offer:

FOUR Quality slides, of any California subject that you desire, for ONE DOLLAR. One of these slides colored, and three black and white.

SUGGESTIONS: The Giant Redwoods, Old Missions, Yosemite, Mountains, San Francisco, San Francisco Bay, Industries, Marines, Birds, Wild Flowers and many others.

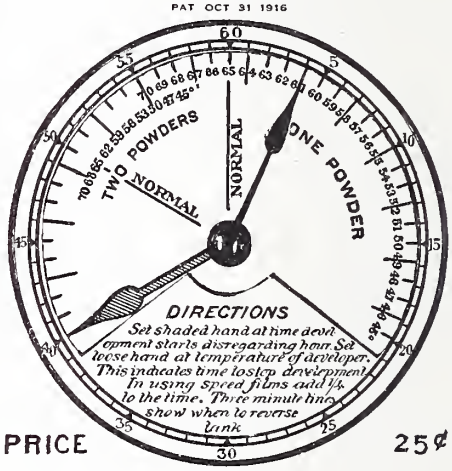
A. E. DAVIES

695 SIXTY-FIRST ST. OAKLAND, CAL.

STOP SPOILING FILM GET A MOSS TIMER AND GET THE CORRECT TIME

MOSS TANK DEVELOPEMENT TIMER FOR KODAK FILMS

PAT OCT 31 1916


TWO POWDERS
NORMAL
ONE POWDER
DIRECTIONS
Set shaded hand at time development starts disregarding hour. Set loose hand at temperature of developer. This indicates time to stop development. In using speed films add ¼ to the time. Three minute hints show when to reverse tank.
PRICE
25¢

SELLING AGENTS

HAAS STATIONERY COMPANY

DEALERS IN PHOTO SUPPLIES

Terms to the Trade NAPA, CALIF.

WORTH YOUR ATTENTION

..OUTFITS...

No. 3 Ansco V. P. Speedex, Tessar IC lens, like new, list $56.00.....$45.00
No. 1 Auto, Special Kodak f-6.3 lens, like new, list $40.00..... 32.50
Ica Stereolette, size 1¾x1¾, Carl Zeiss f-4.5 lenses and Compound shutter, plate magazine, list $131.50..... 75.00
3¼x4¼ Popular Ensign Reflex and Sylvar f-6.8 lens, perfect condition, list $85.00.. 65.00
3¼x5½ Sylvar with B. & L. Zeiss Tessar f-6.3 and Comp. shutter, new, list, $90.00 75.00

...LENSES AND SHUTTERS...

6½x8½ Cooke f-6.5, 12-in. focus in barrel, list $102.00 .....$50.00
5x7 B. & L. Extreme W. A., Series V, list $22.50 ..... 12.50
5x7 Cooke f-4.5 in Optimo shutter, new, list $70.00 ..... 50.00
3¼x5½ Heliar f-4.5, 6¼-in. focus, in barrel, list $60.00 ..... 50.00
4x5 B. & L. Zeiss Tessar IIB, f-6.3 in Compound shutter, like new, list $50.00..... 37.50

Full Line of Sylvar Lenses in Stock

We do not publish a regular bargain list and if you don't see what you want write us, as we now carry a complete line of new cameras and supplies as well as second-hand outfits.

G. E. BIDDELL & CO., The Camera Doctors

53 FOURTH ST. SAN FRANCISCO

MARSH & CO. 712 MARKET ST. SAN FRANCISCO

We announce one of the most useful photographic novelties—"The Liberty Button Locket"—a novelty with a deep human interest—enabling the soldier boy to carry with him the photographic likeness of Mother, Father, Wife and Children or Sweetheart, as the case may be.

Liberty Button Lockets ..... 50 cents

Send for circular.

Kodak Self-Timer

The last word in automatic exposure devices—works absolutely and dependable. Reasonable at $1.25.

Kodapod

This apparatus enables you to make time exposures in out-of-the-way places without being burdened with a tripod.

The price $1.25

Auto Mask Printing Frame

No fuss of cutting masks and the edges of your prints are always straight and smooth—makes printing a pleasure.

Postage prepaid for a limited time $1.25

Eastman Studio Scale

The old bother of lost weights overcome. Weighs up to 50 grains by simply sliding indicator on bar. Very finely adjusted and extremely accurate. You cannot afford to be without a scale of this kind.

Only $3.50

Benoit's Technical Water Colors

For particular colorists we believe Benoit's Technical Water Colors would prove a blessing. This set of ten colors in ¼ ounce bottles is sufficient to verify all we say about them. The colors are also furnished in the following size bottles—1 oz., 4 oz., 8 oz., 16 oz. and 32 oz.

Price per set $1.50—Postage 15 cents. Send for circular on Lantern Slide Coloring FREE.

MARSH & CO. 712 Market Street SAN FRANCISCO MAIL ORDERS

SOME BARGAINS

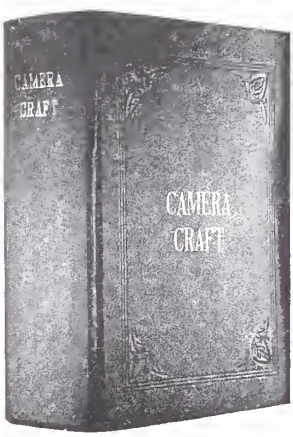
3A Graflex, IC Zeiss Tessar f-4.5 in Compound shutter and case, perfect order, list $169.50	$100.00
3¼x4¼ Ensign Reflex, with Carl Zeiss f-4.5 lens, perfect order	100.00
4x5 Revolving Back Auto Graflex, case and magazine plateholder, perfect order, list $140.50	80.00
5x7 Press Graflex, good order, list $110.00,	50.00
0 Graphic and case, list $44.00	29.50
5x7 Film Premo, list $30.00	15.00
5x7 Film Plate Premo, list $35.00	20.00
3A Special Kodak, Zeiss Kodak anastigmat lens, f-6.3, Compound shutter, list $76.25	52.50
1A Special Kodak, 1917 Model; range finder, Zeiss Kodak lens, f-6.3; latest model, perfect condition, list $59.50	41.50
3A Folding Brownie, R. R. lens, list $14.00,	9.50
No. 3 Special Kodak, Zeiss Kodak lens, good order, list $59.50	35.00
No. 3 Ansco Speedex, Goerz Dagor lens, f-6.8, in Compound shutter, slightly shopworn, list $54.00	42.50
No. 6 Cirkut Outfit, perfect order, list $132.50	82.50

All Goods Guaranteed Satisfactory To Purchaser

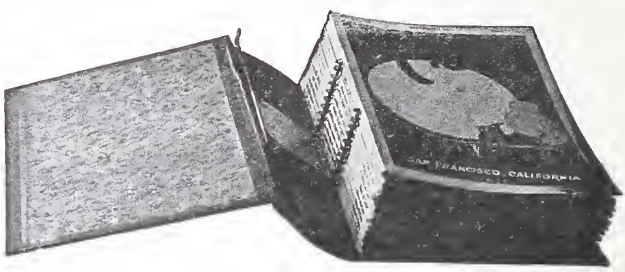
Kodaks **Lasky's** *Opticians*

832-834 Market Street *San Francisco, Calif.*

BIG BEN BINDER for CAMERA CRAFT



For a long time we have been looking for a really practical binder, one that we could recommend to our readers. We believe we have found it in the **BIG BEN** shown below. Put on the



market only a few months ago it has already been adopted by such leading publications as Cosmopolitan, Ladies' Home Journal, Good Housekeeping and hundreds of others. This binder is finished in book cloth with **Camera Craft** stamped in gold on front cover and back. It is equipped with a patented device for binding twelve copies of Camera Craft together in a single volume, having the appearance of a regular bound book. It is strong in construction and so simple in operation that the filing or extraction of one or more magazines requires but a few seconds. No punching of holes is necessary—just a slit between the pages with a pen knife, the insertion of a metal clip, and the magazine is ready to be dropped into place over the binding rods, which are swung back and, with a slight turn of the wrist, securely locked to the solid wood back. The back is not flexible and there is no chance for the magazine to work loose or uneven. We supply them at **$1.00 each, postpaid.**

CAMERA CRAFT : . CLAUS SPRECKELS BUILDING SAN FRANCISCO, CAL.

CAMERA CRAFT

A Photographic Monthly

Entered at the Postoffice in San Francisco as Second-Class Matter. Copyrighted, 1918, by Camera Craft Publishing Co.

CONTENTS FOR MARCH, 1918

Morning in the Redwoods (Frontispiece).....Percy Neymann, Ph. D.
A Camera on the Ranch.....Frank Reeves 91
Enlarged Negatives .....By "Technico" 96
An Improvised Dark-Room .....Keith Koons 101
An Improvised Stereo Equipment .....John B. Gale 104
Those Distant Views.....B. F. Loomis 106
Mr. Browne's Criticism .....F. Morris Steadman 108
A Profitable Side-Line .....Frank B. Howe 112
Paragraphs Photographic 114
A Small Saving—Fixing Enlargements.
Editorials 115
Are We Too Serious?—Goods that are Not Advertised.
A Photographic Digest..... 117
Wet Gelatine Emulsions—Some Misconceptions in the Use of Light Filters in Multiple—Color Screens and Definition—Reducing Bromide Prints Dry, Without Abrasion.
The Amateur and His Troubles..... 123
Making Good Portraits—Making a Comparison—Saving Hypo—Finding the Focal Length—Hydroquinone Turning Brown—Time of Tank Development.
International Photographic Association..... 125
Our Book Shelves 126
Notes and Comment..... 127

Expirations—Subscriptions to Camera Craft are discontinued on date of expiration. The date on the address label on the wrapper shows the time to which each subscriber has paid. Thus: Nov. 09 means that the subscription expires with the number dated November, 1909. ¶**Renewing**—In renewing a subscription, do not fail to say that it is a renewal, giving name and address just as now on the address label. ¶**New Address**—In notifying us of a change of address, give both the old and new address. Should you miss a copy through change of address, advise us of the fact, and another will be gladly sent. ¶**Dealers**—All photographic supply dealers and news dealers are authorized to receipt for subscriptions in our name.

Subscription Price, $1.00 Canada, $1.25 Foreign, $1.50

Camera Craft Publishing Company, Claus Spreckels Building, San Francisco, California

FOREIGN AGENTS:

Australia . . . . . Harringtons, Ltd., Sydney
Australia . . . . . Kodak, Australasia, Ltd., Sydney
England . Francis Collas, 3 Wine Office Court, Fleet Street, London, E. C.
New Zealand . . . . Waterworths Limited, 58 Queen St., Auckland
New Zealand . . . . Waterworths Limited, 286 Lambton Quay, Wellington
Philippine Islands . . . . . Squires, Bingham & Co., Manila
Japan . . . . . K. Kimbel, Yokohama

The House of Good Service

Films	Portrait Outfits
Plates	Posing Chairs
Papers	Backgrounds
Cameras	Accessories
Chemicals	Shutters
Card Stock	Lenses

Everything the Photographer requires always in stock for prompt shipment

HIRSCH & KAISER

218 POST STREET SAN FRANCISCO

MORNING IN THE REDWOODS
By PERCY NEYMANN, Ph. D

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXV MARCH, 1918 No. 3

A Camera On The Ranch

By Frank Reeves

With Illustrations by the Author

In trying to write something that will be helpful and informative concerning the use of a camera on the ranch, I find myself in much the same position as the boy from the country who went to the city to see the sights. After inquiring as to the principal points of interest and the various cars he should

ROPING CATTLE FOR BRANDING ON S. M. S. RANCH

take to reach them, he was unable to make a decision as to which one to visit first. Like this other chap from the country, I hardly know where to begin.

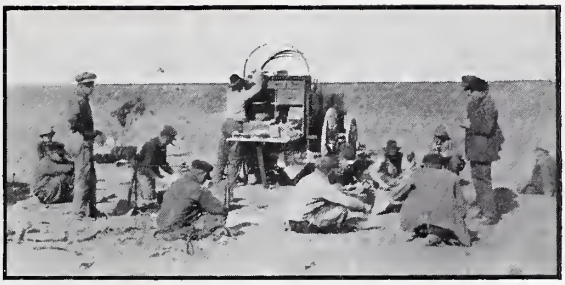
Picture-making has been a hobby with me for a number of years; the pure delight of recording incidents and events has a strong appeal; and incidentally, the element of chance which enters more or less, at least in my case, into the making of every picture, adds to the interest. With me, after minimizing as far as possible this element of chance in my timing of exposures and development of the plates or films, my degree of success has been measured by the standard of naturalness, my aim being the true-to-life records. And while I have no condemnation for the artistic, I am just about as familiar with the rules of art as I am with the German Kaiser.

My photographic career opened up with a magazine camera which carried twelve 4x5 plates. Sometimes, when one worked the little lever that was supposed to change the exposed plate for an unexposed one, it failed to work; or it might, as a variation, change two of them at the same time. Yet I doubt very much if another camera could ever give me the thrill and the genuine pleasure that this one did when I unpacked it, along with the various accessories that I had ordered from a mail order catalogue without being aided or abetted by anyone at all familiar with either the making of pictures or the equipment necessary. While the catalogue did not say so, I got the impression that all the cameras listed were just about automatic when it came to making pictures with them, regardless of the conditions.

But experience is a good teacher, and one of the things that I have learned is that while every camera has its good points and its failings it will, if used within the scope of its limitations, deliver the goods. Since beginning I have used cameras ranging from the small film ones up to those using 6½x8½ plates. I like them all and if I could afford it would have them all. Plates have the advantage of varying speeds, grades, etc., but they are bulky. Films have the advantage of compactness, but are a little more trouble to handle and more expensive. My present outfit consists of a 3A Graflex fitted with a seven-inch Bausch & Lomb Anastigmat. While in using this larger lens, I sacrifice a trifle in depth of focus and width of angle; this, to my way of thinking, is offset by the increased size of the image secured. In my work I often find it impossible to get as close as I would like to my subject or subjects, as the case may be. A bucking bronco and things of that sort are not always the safest or easiest things to approach.

The people I work for own and operate the S. M. S. Ranch of something over four hundred thousand acres, stocked with high bred Herefords. They enjoy the unique distinction of doing a mail order business in cattle. Each year they sell, in small lots, some eight or ten thousand head, and while these go all over the country, to practically every state in the Union, comparatively few of the buyers come to inspect their cattle when shipped from Texas in the fall. In the main my duties keep me pretty close to the office, but opportunities often permit me to get away and out on the ranch, with the result that I am gradually accumulating a collection of pictures that are priceless to me. They not only represent a phase of Western life that is

A BRANDING SCENE
ONE OF THE S. M. S. RANCH OUTFITS



DINNER AT S. M. S. CHUCK WAGON
BEEF FOR DINNER

fast disappearing, but each one will later bring back pleasant memories of the time when it was made. A picture of the boys at work dragging a calf from the round-up to be branded, an animal having the ranch brand, S. M. S., burned upon it, someone riding a particularly bad bronc, others killing a beef for the chuck wagon, or a picture of the boys as they are later enjoying a meal fit for a king; these and many others make excellent subjects. If one has

BRANDING CATTLE ON S. M. S. RANCH

A COVEY POINT

ever experienced the pleasure and hospitality of a chuck wagon dinner, he can hardly look at a picture showing the boys gathered around the back end of the wagon, where the meal is served without a longing for the welcome signal from the cook, the hearty command, "Eat it up!" If he does not, he either has a bad case of indigestion, or he is a very peculiar person indeed.

The cowboy of the novel and the moving picture screen is a regular devil whose sole occupation seems to be that of gambling, drinking or shooting up some tenderfoot. The cowboy, as I know him, is quiet and unassuming, a great lover of the true and genuine, with a great detest for the unnatural and unreal. He is often frank to the degree of painfulness; that is, when asked for his opinion concerning a thing, he is as candid as he is unhesitating in expressing his views. If they are favorable, if he thinks a thing good, he merely says so and doesn't slop over doing it; but, if he thinks it bad, he readily calls it bad without any apologies. His judgment is uniformly good, and in my work, it has been my aim and desire to make pictures that the boys would endorse. While they would, to a reasonable degree, be willing to pose and assist in making faked pictures; that is, pictures in which the subjects were posed to secure an effect, I long ago learned that cowboys are much like children in this respect; you can't pose them to look natural. To get anything that is good, one must catch them when at ease, when unconscious of the camera, when busy and interested in their work.

The ranch headquarters and permanent line camps are generally occupied by a married man, and the younger children are always such a source of pleasure to the boys, that the wife and mother is often at her wits' end to handle the situation, and splendid subjects for my camera are often afforded. Then, too, the opening of the hunting season provides me with the pleasure of shoot-

QUAIL HUNTING ON S. M. S. RANCH

ing my camera, as well as my gun, and pictures of my favorite dogs doing their part are always a source of enjoyment as I later look them over.

I do not claim the possession of the only ideal outfit for this kind of work. I decided upon it only after I had added up its good points, subtracted therefrom its limitations, and found that, from my standpoint, a good working balance remained. Just now I have another and different outfit in mind; and, when I get that, and have worked with it, there may be another story,—I am not quite sure. Any particular outfit may be more attractive and more effective in the hands of one person than another. My advice is, regardless of what you have, become familiar with it, know its limitations and its possibilities and be governed accordingly. Then, get well acquainted with your subject, and the chances are you will get some good pictures. While the rankest beginner will sometimes get good pictures, and the most experienced worker will often make a number of failures, in the long run one's successful pictures will be in proportion to the knowledge he has of his outfit and his familiarity with his subjects.

Art

To enable one to translate the crude facts of life in a suitable manner, there must be an atmosphere of mental refinement. The untrained eye sees that a man is a man, and perhaps that a face is a face, but it does not discern the shadows or lights upon form or features. Cultivate it to some degree of artistic power and it will see shadows distinctly, but only the more vigorous of them. Train it still further, and light within light and shadow within shadow will be seen, until at last it will find delight in gradations imperceptible to the untrained eye. These gradations, then, must be sought for carefully, as they are the last parted with as the objects retire into distance.—A. Ashleigh Snow.

Enlarged Negatives

By "Technico"

Some years ago I submitted a number of my pictures, twelve of them, to an exhibition. They were carefully selected views, printed in carbon, from 5x7 negatives. I had done my best in making the negatives, and spared no time or trouble in getting the prints as near perfect as possible. I had them nicely framed and hung them on my allotted wall space. Shortly thereafter the manager of the photographic section of the exhibition came to me, complimented me on my work, and asked if I had other pictures available, as the wall opposite my exhibit had not been taken and he did not like to leave it blank. Learning that I had no others that I cared to show, he said he would try elsewhere to get something to fill the vacant space,—and he did. He went to a commercial photographer and secured a lot of 20x30 enlargements, made from negatives that had been taken with no other object than that of showing the timber on some wooded land in the vicinity. They certainly filled the space, and they were, no doubt, quite suitable for their original purpose, that of getting the attention of a possible purchaser of timber land; but they made no claim to being either artistic or technically good. They had turned yellow, the mounts were dirty, but they were photographs and filled the space. The exhibition was a large one, with the result that visitors devoted only a few minutes to each department. They would enter the room, glance about, and then make a bee line for the large pictures which had first caught their eye; and then, having looked them over, they would pass on to the next room. Bad as they were, these enlargements completely killed my modest little prints over which I had spent so much time and trouble.

On the other hand, when I show even a poor 5x7 print to the owner of a 3¼x4¼ camera, he will say: "That's dandy; I wish I could get pictures like that", even though many of his own smaller pictures may be better than the one I show him. There is no doubt about it, no matter how near perfect a small print may be, it is placed at a great disadvantage when shown in comparison with a large one.

When we come to the method of securing larger pictures, some workers, mainly old-fashioned professional photographers, will insist that the only way to get good results is to take large originals. This involves not only a cumbersome outfit, but the increased expense and inconvenience of large plates. This last would not be so bad were it not that many exposures are not exactly what was wanted and the negatives are discarded. In addition, the large camera must be equipped with a lens having, on account of its longer focal length, much less depth of focus; a serious drawback when conditions do not permit of a small stop being used. Then again, others will advocate the making of ordinary bromide enlargements, a method having much to recommend it, but one that deprives the worker of any choice in the matter of the printing process

A TYPICAL CALIFORNIA COAST SCENE By CHARLES A. HARRIS

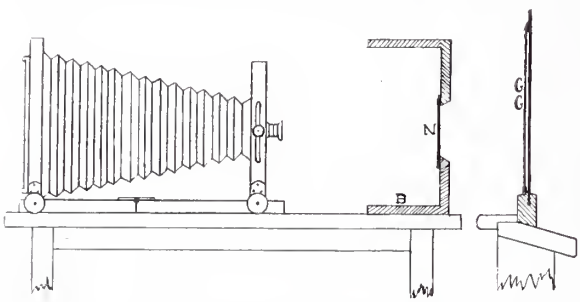
used, and furthermore, should one want a number of prints from the same negative, he is compelled to use the enlarger for each one.

Coming to the one remaining procedure, the making of an enlarged negative, we find all these objections removed. There is, it is true, and added expense for the two extra plates, one large and one small; but, as we will of course deal only with those of our small negatives that are perfectly satisfactory, the added cost is not great. As compared with the making of large originals, the apparent cost is in reality a saving when one considers the proportion generally discarded. It is easy to make enlarged, duplicate negatives from the best of our small ones, negatives that show no noticeable loss of quality. Where the original negative is weak or flat, we can make our enlarged negatives of very much better quality; and, with contrasty originals we can do much to soften the hard, unpleasant high-lights. When the original negative is one that requires working up, we can avoid that bete noire of so many photographers, etching or knife work to remove or reduce objectionable lights; and, best of all, we can make our negatives suitable to any printing process we may elect to use.

The first requisite in making a duplicate negative, be it enlarged, decreased, or the same size, is a suitable positive; and this is where not a few workers invite failure. The positive must not be snappy like a lantern slide; it should have no clear glass areas, but be soft like an under-developed negative from a fully timed exposure. In fact, this positive should resemble a negative that can only be printed on a contrasty grade of developing paper. Our positive

can, of course, be printed on a dry plate by contact, just as it could be printed on developing paper; but, as a camera will be required in making the enlarged negative therefrom, the better results obtainable make it well worth the little extra trouble involved in using the enlarging camera, instead of a printing frame, as so often advised.

Any enlarging outfit that one may have, regardless of its form, will do the work satisfactorily. If none is available, something similar to the one shown in the drawing herewith can be fixed up quite easily and will be found to give results equal to those of even the most elaborate equipment. The camera should be large enough to take plates the size required in the enlarged negatives; but, as it is only to be used indoors, the cheapest one obtainable will answer every purpose admirably. A large lens will not be required, the one with which the original negative was taken will be quite satisfactory, even when the new negative is much larger, because its position in relation to the plate is the same as in ordinary enlarging. Using the small lens and working from a small positive, a camera of moderate extension will permit of considerable enlargement, so that a special copying camera is unnecessary.



This camera is placed on one end of a table, having its other end against a window, this latter preferably affording a clear north light. The light should be well diffused by attaching a sheet of ground-glass, G G, to the window with strips of binding tape. Should the light be uneven, due to obstructions opposite, a piece of prism glass having about eight or ten prisms to the inch, should be fastened to the window, and the ground-glass then moved to about three or four inches therefrom. This will give the same effect as would a reflector placed at an angle outside the window, but be much neater because lying flat against the glass. B in the sketch is a shallow box, used as a support for the small negative, or positive, as the case may be, so placed that the camera may look into it as shown. A hole, one-fourth inch smaller each way than the small negatives used, is cut, as shown at N, so as to come directly in line with the camera lens; thin strips of wood being glued around the edges, so that the negative fits snugly within. Two small springs or turn buttons serve to hold the negative in place. If found necessary, in order to secure good diffusion of the light, one can fix a piece of ground-glass against the other side of the opening in the same manner.

To make the small positive, load a small plate, a slow one, into the holder, using a kit. With the negative in position in the box-like support, focus it sharply and make an exposure, taking care not to cut the time too short. While the exposure required will be short, it is quite impossible to say just what it should be, as so much depends upon the density of the negative and the strength of the light. With a good light, an average negative, and using stop f-22, five seconds would be a good guess for the first experiment. Develop this

ROCK-A-BYE BABY By CECIL V. ASHBAUGH

positive in an ordinary plate developer, preferably the formula given by the maker, taking care not to over-develop.

If the exposure has been sufficient to allow the light to penetrate the densest parts of the negative and development proceeds as it should, the exposure can be considered as being about right. If the development is correct, a little excessive density will do no harm; but, if the positive looks bright and snappy, it has been over-developed and making a good negative from it will be almost impossible. Having been careful not to get the positive too contrasty, we can easily correct any flatness that existed in the original negative by simply developing it a trifle longer. With a little practice, this procedure gives one such control that he will often find it well worth while to make a duplicate negative just for the improvement obtainable. By using a lantern slide or process plate for the positive; and, in extreme cases, for the new negative also, one can, by

A FOGGY DAY ON THE CALIFORNIA COAST By EDWARD LAROCQUE TINKER

full development, make a passable new negative from an original that is quite incapable of itself producing a good print.

Having made the positive, if there is no hand work to be done on it, proceed at once with the making of the enlarged negative, as the wet emulsion will be more free from grain than after it has been allowed to dry. Remove the negative from the opening in the box and replace it with the still wet positive. Load the plateholder with the large plate required for the new negative and proceed as before, remembering that the exposure is increased as the square of the increased camera extension. By varying the exposure and development, we can get practically any kind of a negative we may desire, dense or thin, soft or contrasty, to suit our printing medium, be it carbon, platinum, or what it may. And, by the way, if the new negative is intended for carbon, just reverse the positive when placing it before the camera and the negative will be suitable for single transfer. Given a positive that is soft and full of detail, the making of a good enlarged negative is a very simple matter; and, with a good enlarged negative, the making of good prints is a pleasure, but one has the advantage of a wide choice of printing processes.

Most negatives require, for the best results, more or less dodging in printing. By making an enlarged negative, as described, the worker has a double chance of doing this. Parts held back or shaded in making the positive will be influenced in just the opposite manner from parts so dodged in making the new negative. While more elaborate dodging or control is required, one can flow the back of the original negative, or the positive, with ground-glass substitute and apply crayon sauce to the parts that are too thin. Or, if preferred, a piece of ground-glass can be attached to the back of the negative, and the same procedure followed. Any excess crayon sauce can be removed with a pencil eraser.

While I have no intention of going into the details of retouching, in this article, I should point out, for the benefit of the many retouchers who detest the use of the knife or etching tool, that this way of working makes it possible to avoid etching, even when the original portrait negative is one demanding such work. One can easily see that by using the pencil on those parts of the positive that should have been etched in the original negative, the same result is achieved. And in conclusion, let me say that formidable as these instructions may seem, the photographer, with a very little practice, should have no trouble in making a new negative and getting it into the hypo in half an hour from the time he starts.

Harmony in painting is the connection and agreement of one part with another, either as regards form, light and shade, or color: this agreement proceeds either from a succession of the same forms in different degrees of distinctness, such as arise when we cast a stone into water, producing a succession of undulating circles, or by one form depending upon its adjoining for its completion and unity, as is the case in poetry; or the harshness of isolated forms may be broken down, and harmonized with the whole, by their being hinted at, or faintly repeated in various portions of the picture.—JOHN BURNET.

An Improvised Dark-Room

By Keith Koons

With Illustrations by the Author

Prior to last May, I was a prominent, or I might say, "notorious" member of the Southern California Camera Club. The Government, however, decided, about that time, to remove me to El Paso, Texas; so I donated and traded my stock of photographic chemicals and paraphernalia to other members of the club, intending to foreswear photography. But, only a few months elapsed before I was forced to the conclusion that: "Once a bug, always a bug," and so decided to equip my bathroom as a dark-room and resume my activities.

To "camouflage" the window, I used a red flannel blanket from the hotel bed, fastening it in place with push pins. At a cabinetmaker's I found a piece of light, three-ply wood, three feet square; and this, after being covered with ten cents worth of oil-cloth, was placed on top of the tub to accommodate my apparatus. Three granite-ware trays, 7x9, costing thirty-five cents each, are used for all work.

For a printing box I took an ordinary tin cracker container, eight inches wide, twelve inches long and ten inches deep. A light wooden frame was so constructed that it would fit into the box with its side bars or members about one and one-half inches from each side, and about four inches from the top. This frame carries three fifty-watt Mazda lamps, two on one side, and one on the other. As regular sockets cost money, and none could be "found", holes were cut in these side bars and the fifty-watt lamps screwed therein. To make the proper connections, some brass picture hooks were flattened out, cut into strips, holes punched in them, and two of these screwed to the bars at each bulb in such a position that the end of one came in contact with the threaded portion of the lamp stem and the other in contact with its extreme end. Wires were run along the bars and contact made with the the screws holding the brass strips, thus wiring the three globes in parallel.

In one corner of the frame, on an extension of one of the strips, a small globe was attached in the same way, and covered with a red cloth. This was so wired that when the white lights were switched off a red light was on. When the frame with the lamps was placed in position in the box, the three fifty-watt Mazda lamps were supported horizontally in a staggered row, two extending into the box from one side and one from the other, with the small red light in one corner near the bottom. A fifty cent "two-way" switch was purchased and attached to the front of box with small machine screws. To this the wires were connected in such a way that with the handle to the left the red light is on and the white ones off and when to the right the white or printing lights are on and the red one off. An old fiber shoe horn was soaked in water, flattened out,

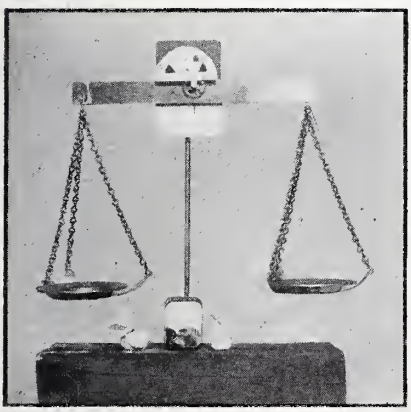
and two contact terminals, requisitioned from an old electric iron, were attached thereto. This was fastened, with small bolts, over an opening in the end of the box and the wires from the globes and switch connected. The cord of the same electric iron is used to make connection between the box and the wall socket, and this is found more convenient than the usual cord, as there is none of the twisting involved in the use of a screw socket at both ends.

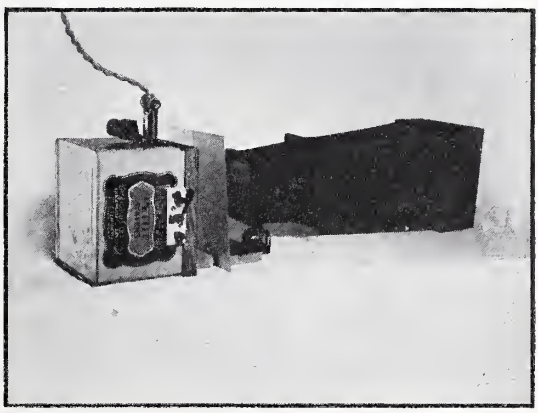
Ordinarily only one sheet of groundglass is used for diffusion. As the required size is quite expensive, I made my own, using five cents worth of No. 120 carborundum powder. To do this, simply lay one sheet of glass on a perfectly smooth and level surface, throw on carborundum and water, and then rub another sheet of glass over it, using a circular motion. In about ten minutes you will have two sheets of groundglass as the result of your work. Sometimes the glass is not quite flat and light spots or "holes" will occur. These may be rubbed out by using a small piece of glass and some of the powder and water directly over them. The top of the box was faced with light strips of wood, slotted to receive the groundglass. To print the negative, the paper, and the matte are laid upon the groundglass top of the box and the first two centered by means of the small red light in the bottom of the box. A cigar box full of sand, with a handle attached to the top and a piece of felt glued to the bottom, is placed on top to hold paper and negative in good contact. The switch is thrown over to the other side and the exposure made. This procedure is much quicker than that necessary in using a printing frame, but of course it does not permit of "dodging". When this last is necessary, the printing box is turned on its side and a printing frame used. This box accommodates negatives up to 6½x8½ size; and, using the three, fifty-watt Mazda lamps, ordinary negatives require from two to ten seconds' exposure.

With a black cloth cover, one having an opening the size of the negative, to pull over the top of the box whenever the white light is turned on for printing, development can be carried on uninterruptedly at the same time. The bath tub makes an ideal washing box, into which the prints are dropped as fast as developed and fixed. A small funnel is inverted on a piece of gasket rubber, in which is a hole coming directly over the drain. The water enters the tub through a hose at the opposite end and overflows through the stem of the inverted funnel as it rises high enough to do so.

This same printing box is also used to form an enlarging apparatus by fitting to it an old No. 3 Brownie enlarging cone with the center partition arranged to take a No. 3 Special shutter and f-6.3 lens. An extension was built on the large end of the cone to accommodate the increased focal length of this lens. With two sheets of groundglass for diffusion, a 3¼x4¼ negative is enlarged to 6½x8½ in from forty seconds to two minutes on P. M. C. bromide paper.

To develop films a lamp was made by taking a cigar box, fitting it with a ruby and an orange glass, and suspending a small electric globe inside. This last was fitted to a socket made by boring a hole in a block of wood, and arranging connections in the same manner as in the large box. For bromide or Velox paper developing, the ruby glass is removed and only the orange glass used.





THE PRINTING BOX, THE ENLARGER AND THE SCALES

Of course, this style of connections would never stand inspection and are not to be recommended for continuous use; but as they are never connected up with the house current, except when one is present, there is no danger.

As purchasing developers and the like already compounded is expensive, I felt that a set of scales were needed, and an expenditure of twenty-five cents and a little time provided me with ones that would weigh from one grain up. A strip of brass, eight inches long, one inch wide and one-eighth of an inch thick, was rescued from a scrap heap and three neat holes bored therein; one just above the center and one at each end near the lower side. As the proper tools were not available, these holes presented a problem that was solved by inserting a Victrola needle in a cork, holding the cork tightly against the brass and striking the needle with a hammer. Taking apart an old alarm clock, a suitable wheel was selected and the lower parts of the front and back frame of the clock cut away. The shaft of the wheel was pressed through the center hole in the brass bar, the minute hand of the clock pressed over this for a pointer, and the wheel then mounted in its natural bearings in the remaining part of the clock frame.

As these clock bearings are very smoothly fitted, this little wheel shaft forms an axis on which the brass beam swings very easily. To each end of this

last was suspended, by three six-inch lengths of small chain, a three-pronged piece of tin cut from a tomato can. On these last rests the two small aluminum trays, used as scale pans. This part of the clock carrying the brass beam was mounted on a small block of wood which in turn is supported, at the proper height above a heavy wood base, by means of a stout wire standard. Pieces of lead were hammered out and from these weights were cut; an obliging apothecary permitted the use of his scales for determining the proper size of pieces to make the five, ten and twenty-grain weight. Other sizes were computed from these, small bags of shot being used for the half ounce and ounce.

This entire equipment for converting a bath-room into a dark-room for developing, printing and enlarging, cost less than three dollars; and, insofar as rapidity and convenience is concerned, the printing box could well be used for a limited amount of commercial work.

N. B.—After writing the above the author finds himself again transferred (however at his own request) to a branch of the Government service in France, where he takes up his duties some time in March and where he will, no doubt, of necessity, again forswear photography, at least during the duration of the war.

An Improvised Stereo Equipment

By John B. Gale

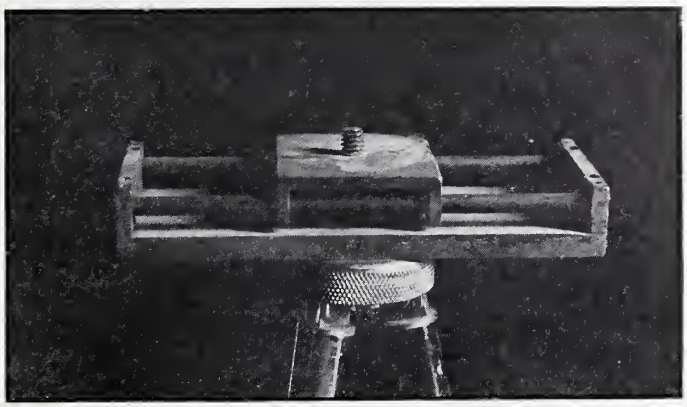
With Illustrations by the Author

I have long been an ardent admirer of stereoscopic views, my interest in them antedating my taking up of photography. Feeling that I could not afford to gratify my taste in that direction to the extent of another and larger camera,

THE JEWELS THAT JACK FROST BESTOWS

AN IMPROVISED STEREO EQUIPMENT

I devised a simple piece of apparatus, shown in the illustration herewith, that permits me to make stereograms of inanimate subjects with my ordinary 3¼x4¼ camera, making two separate exposures for the two required elements of the complete stereoscopic picture.



The illustration makes a description almost unnecessary. The part shown in the center is fitted with a tripod screw to which the camera is attached, the base of the device itself being fitted with a bushing that permits of its attachment to the tripod. The first mentioned or sliding part allows the camera to be pushed to one end of the device, an exposure made, then pushed to the other side and the exposure repeated. The whole thing is very simple, an extra tripod screw and bushing being about all the material required. The ends of the rods are set just a trifle further apart than the holes in the sliding portion, so that the latter pinches a little and holds the slide fairly tight when shoved to either side. There is, I should explain, a screw that goes through the side of the sliding portion and engages the shank of the tripod screw that holds the camera. This does not show in the picture, but is important, as it permits the camera to be screwed down tight.

In reality, this device, if made somewhat longer, would give better results,

ICE FORMATION ON THE BOUGHS OF A TREE

in a great many cases, than would an ordinary stereoscopic camera. This for the reason that the amount of separation between the position of the lens in making the two elements of the picture could be altered to correspond, as it should, with the distance of the view. The amount of separation given the lenses in a stereoscopic camera is that best suited to an ordinary view; near objects, such as still life studies and the like, being rendered with a distorted perspective, owing to the separation being too great; while distant views are lacking in proper amount of perspective, because the separation is insufficient. With this device of mine one could easily limit the separation to a distance short enough for very near objects, and increase it to the full capabilities of the two rods for distant views.

The pictures herewith record ice formation on the boughs of different trees during a recent storm. They were made on a dull day in December at about 9:30 A. M. An Eastman film was used and an exposure of one-fifth second given with stop f-16. It was raining at the time, but an umbrella in the hands of one of my children protected the camera and myself, while the exposures were being made. If one will examine them by placing the page in position on a stereoscope, I think they will agree that the effect is much more interesting than when looked at in the ordinary way. Such pictures as these are much superior, in the stereoscopic form; and, where no movement prevents, this simple device makes an ordinary camera fully equal to the requirements.

Those Distant Views

By B. F. Loomis

With an Illustration by the Author

A few days ago I was commissioned to make a photograph to include part of a house in the immediate foreground, a cluster of buildings in the middle-distance, and old Mt. Shasta some hundred miles in the extreme distance. I explained that this was a rather large order for a small plate, but I would try and see if it could be done. Difficult pictures always have a strong appeal for me, and I was only too glad to undertake the task.

My 6½x8½ camera was loaded with a Cramer Instantaneous Isochromatic plate; and, my two ray filters, one a five-times Bausch & Lomb, and the other a Goerz Medium three-times one, were both placed in front of the lens. Taking out the front combination of the lens gave me a focal length of sixteen and one-half inches, practically a telephoto lens. The stop used was marked f-22, and it may be well to explain that I use the D set of Bausch & Lomb Protar lenses, which has the f-valve of the stops for all the combinations, marked on the case of the Volute shutter. There is, therefore, no guesswork and no figuring as to the value of the stop, as one need only note the focal length of

RANCH WITH MOUNT SHASTA IN THE DISTANCE

the lens or lens combination used, and then look for that length on the scale, where all the various stops are marked. Of course, stop f-22, with the sixteen and a half inch focus is not the same as for the other combinations; for, while with this focal length the diaphragm is about three-fourths inch in diameter, on some of the shorter focal lengths the same stop, f-22 is only about half as large. I gave the plate an exposure of eight seconds, and that was none too long. This goes to show that Mr. Hood's plan of increasing the exposures by multiplying together the "times" of the two filters and using the product, rather than their sum, as a multiplier, is the most satisfactory. The right exposure for the unscreened lens would have been about one-half second, as the reader can figure from any exposure table, using the data given. Multiplying by eight, the sum of the "times" of the two filters, would have given four seconds as the exposure. Multiplying by fifteen, the product of the two "times" of the filters multiplied together, gave seven and one-half seconds, the exposure given. I used an old developer, as such a one contains more bromide than when freshly made, and this holds back the sky and the distant view. The result is a more uniform negative, one that brings out, in this case, the distant mountain, much better than would a fresh developer, had it been employed.

Last winter I told, in these pages, about my experience with multiple ray filters, and the pictures published therewith attracted considerable attention. The Bausch & Lomb Optical Company requested one of my pictures for their catalogue, and that leads me to think that these very distant views are not common. I am, therefore, giving all the details in order that anyone can do equally well should they take the pains to try out my plan on a like subject. In this

instance I not only got the distant peak, but also a small cloud that floated just above. It is perhaps needless to say, with the shadows so well defined, that the picture was taken about ten A. M,. in bright winter sunlight.

I do not claim that the result is either picturesque or artistic. I have read perhaps a thousand pages concerning lines, balance, composition, etc., and yet have no clear conception of what constitutes an artistic picture in the learned acceptation of the term. I have read what some art critics had to say in whole pages of commendation concerning a fuzzy kodak print that the most primitive "snapshotter" could duplicate with his eyes shut, and yet I failed to see the artistic side of the picture. I realize, however, that two or three nursery trees and a few hop poles do not make a very picturesque foreground and my apology is that I took this pictures because it was ordered.

Mr. Browne's Criticism

By F. Morris Steadman

On re-reading the first part of my September article, I find that Mr. Browne is justified in saying, as he did in the January issue, that I refute myself therein. In saying that the so-called "law of inverse squares" is in no way a law of light intensity, my words were not well chosen. I should have said that it is not a basic law of light intensity. I also find that, while I argued against the explaining of light intensity by means of a mental picture of a point light source and diverging rays, I did not make it clear, in short, direct sentences, that I considered this point source idea the one great fallacy. This fallacy corrected, the erroneous application of the law of inverse squares to diverging, instead of to converging light, becomes apparent.

Since not only Mr. Browne but other gentlemen, whose letters have been forwarded to me, hold that I am confused as to this law of inverse squares, let me make a clear statement of my belief as regards light intensity. I condemn entirely the idea, when associated with a consideration of light intensity, of rays diverging from a point source. I hold that light intensity is not created by rays that diverge from a point. In vision we differentiate between the fine points seen on any surface, and in photography we recognize the individuality of each grain of the sensitive salt in our emulsion, the different amount of light that each receives during the exposure being the measure of the variations in resultant opacity when the plate is developed.

I admit that, should one be willing to reason from a non-existent condition, such as that of intensity being created by the light radiating from a technical point, the law of inverse squares can easily be proven true. In my former articles I have shown that a cone of green cheese will also conform to the law; since, if bisected at a given distance, and again at half such distance, from the apex of the cone, the areas of the faces produced will be as four to one. To quote from my former articles, the law of inverse squares "is a geometric law that has to do with the form and not with the thing itself".

IN AN ITALIAN GARDEN
By EDWARD LAROCQUE TINKER

Mr. Browne has apparently overlooked the relative importance of the ideas presented in my former articles, perhaps because of my carelessness in the wording, as I have already explained. This idea of convergent light is not new; it has been applied to the function of lenses since lenses have been used. And I am only laboring to bring about a general recognition of this same law and its application to the natural conditions of illumination. While I hold as erroneous the application of all intensity laws, including that of solid angle to the point source idea, as also the belief that the law of inverse squares is a basic law of light, I believe in and accept the latter as fully as does Mr. Browne and the books, when applied to diverging light. In the unit system of photography, the law of inverse squares is employed as a practical, not as a basic, one. Applied to converging light, the error or depature from the truth resulting at each multiple of the source's diameter is a matter of computation, and therefore is not open to argument. There can exist a difference of opinion as to the amount of error necessary for "inaccurate results", but the amount of error itself is computable.

Taking the solid angle cone that I have selected as the unit in my system, the form f-64 or one resulting from the sixteenth subdivision of a hemisphere, it is found that at sixteen diameters from the light source the error involved amounts only to seven one-hundredths of one per cent, or practically the same as no error at all. At four diameters from the light source the error has reached five per cent, an extent having absolutely no noticeable effect in any sort of photographic work, as any practical photographer will agree. In my unit system of photography, I accept a convergence resulting when the opening is only one diameter of the source from that source, notwithstanding that this introduces an error of eighteen and one-half per cent. This convergence gives a cone having the form of f-1, equal to one-eighth the solid angle of a hemisphere, one still applicable in photographic practice; but, as the opening is brought nearer the light source, the law of inverse squares departs violently from the truth, since the spherical nature of the light convergence must be reckoned with and distance and area cease to be factors.

We are taught to base our idea of light intensity on a mental picture of light diverging from a point, and we are told that the law of inverse squares is only true when applied thereto. In criticism, let me say:

First, nature has no point light source; second, the law of inverse squares is, as Mr. Browne has stated, not applicable to natural illumination; third, other of the critics say, quite truthfully, that the area of the surface illuminated is not a factor of its intensity; and, fourth, my critics, while holding to the proposition stated above, also explain how the intensity law of inverse squares can be proven true for a point source, by making the illuminated surface alter its curvature at each change of distance in order that it may retain its concentric form in relation to the point light source, despite the fact that illuminated surfaces, in nature, practically never take such form.

I would ask: How is it possible that the form of an area can prove the truth of an intensity law, when the area itself is not a factor? These gentlemen take the form of a thing that is not a factor of intensity, in order to prove true

a law that is not applicable to natural illumination; so that, by means of that law, light intensity may be computed for a point source of light, something which does not exist in nature.

This ridiculous situation, based on fantastic and inapplicable theories, is today being taught in our schools. Its results are mirrored in the universal popular ignorance of all matters pertaining to light, whether in photography or out of it. In our conception of light converging from the area of a lens stop to a point on the focal plane, the right idea is employed. Light coming through a window and converging on the page of a book acts in the same way. The larger the window or the closer the book thereto, the nearer to a hemisphere the convergent volume would be. The light may converge from a whole sphere or from the smallest pin-hole; and the amount of such convergence is a true measure of the effect such light will produce.

Mr. Browne questions the simplicity of my system, evidently ignoring the first two pages of my October article. These last certainly prove that my system is easily understood. The first class before which I spoke regarding it, was the physics class under Professor Klock, in the Ethical Culture School in New York City. In the fifteen minutes given me I presented the truths of light action as I see them; and, by asking what they thought should be done in the way of measuring intensity, placing value numbers, etc., they themselves develop my whole system of unit photography, including the unit of convergence for solid angle measurements. And this was done without a dissenting voice and without the least doubt or hesitation in arriving at conclusions. They also computed several practical problems of exposure, doing so instantly by the same simple reasoning from cause to effect. Before every such class to which I had the pleasure of talking, this experience has been duplicated.

I recall, however, a different experience with a class of teachers in the normal department of Columbia College. After illustrating the fact, as taught in Barker's Physics, that the thermopile hood secured a constant effect in the instrument by confining the converging cone of radiations to a fixed solid angle, while the distance from the radiating surface was varied, this question was asked: "If the constancy of the effect is secured by the constancy of the solid angle of the impinging cone of radiations, regardless of the elements of distance and area, to what should we trace variations in the effect?" One young woman had the moral courage to reply: "To alterations of the solid angle." The others I imagined were saying to themselves: "True for a point source." But they chose to keep silent. I cite this incident simply to show the difference between those whose minds are dominated by what they have learned from books and the young who are not so hampered in the grasping of truth.

Mr. Browne should not deceive himself regarding the measure of simplicity possessed by my system. Simple numbers employed to represent simple values make for simplicity in dealing with either light intensity, beefsteak by the pound, or buttermilk by the quart. The simplicity of my system, in practice, is due solely to the ordinary use of numbers to express values, which enables the mind to reason directly from cause to effect in the solution of the problems involved.

A Profitable Side-Line

By Frank B. Howe

The photographer in the small town where the opera house is visited now and then by a small repertoire or vaudeville company, and his brother in the large city with its ten, twelve, or more theatres, are overlooking an exceptional chance for extra business if they do not put forth an effort to get the job of making some of the thousands of photographs required each year by theatrical people.

Probably the theatrical business uses more pictures, as a business, than any other profession. Photographs are needed for newspaper reproduction, for display in the theatre lobby, to send ahead to the next town for advertising, and for numerous other purposes. It is indeed rarely that a newspaper returns the picture or that the picture is fit for further use after standing a week in some dusty theatre lobby. Consequently the supply constantly has to be refreshed, and therein lies a golden field for the photographer who can do satisfactory copying.

The reason for this is simple. An act or show starts out from New York. It may run for five years or it may fail the next week. Consequently, it may need a dozen pictures or a thousand dozen before it gets done. When it starts, original pictures are taken, but enough cannot be ordered to exactly last the production through its uncertain length of life without danger of having far too many, yet it is necessary that the same pictures be used in each city. So only a few are ordered; and, as the supply runs low, the photographer in the particular city where the show happens to be, is visited and an order left for sufficient to last eight or ten weeks longer. Therefore the photographer who can do good copying and get the work out in a reasonable time can find a good field for a side-line requiring no new materials or outlay.

What is most used in satisfying the needs of this profession are 6½x8½ or 8x10 black-and-white, semi-gloss reproductions from originals, on double weight white paper, unmounted and not backed, in quantities of twenty-five, fifty, one hundred or more from the same negative, just as they come from the printing frame. Generally a quarter-inch white border is desired.

As to prices, it is customary to charge from ten dollars to thirty-five dollars per hundred for reproductions as herein described. The average is about twenty dollars for good work. If sepias are wanted, or some special finish desired, an advance is permissible.

To get the orders, one must solicit, for it is to be remembered that the actor or manager is a stranger in town. The way may be well paved by a judicious arrangement with the manager whereby, perhaps, the photographer makes some pictures of the theatre or its manager in return for the privilege of hanging, in the dressing-rooms, small cards stating that:

ADAM PYROSTAIN

123 First Street, Yourtown, Cal.

SPECIALIZES IN THEATRICAL PHOTOGRAPHY

Best Quality Reproductions

at Lowest Prices

Armed with a book of samples and with some specially printed business cards, something like this:

Quality Reproductions Lowest Prices

ADAM PYROSTAIN

Theatrical Photographer

123 First Street Yourtown, Cal.

the photographer sets forth in search of orders.

Vaudeville is the most profitable field, for each act has to furnish its own pictures. The best time to visit them is at night, after the act has finished its first show. By the use of small change, or possibly by making a dozen pictures of "the wife", the stage doorman can be prevailed upon to admit the photographer to the theatre's stage. The actors will be found lounging around in the wings or dressing-rooms waiting until it is time to "go on" for the second show. The manager of each act can easily be ascertained by inquiry, and it is then a mere matter of business to introduce oneself, show the sample book and take orders.

In the dramatic and musical comedy companies, it is only necessary to see the show's manager, which can be done during the day, usually at the office of the house manager. With these shows, there is no need to interview individual actors or to go back of the stage, since the company provides all necessary pictures.

There are, of course, other opportunities that will present themselves, once the photographer becomes established, varying with local conditions. Once in a while an act may want some new originals taken. As a rule, this must be done on the stage, using flashlight; although, if the scenery is not required,

they can be made in the studio. A stock company, staying week after week in a city, presenting different plays, is likely to need originals each week and it is well to interview the manager of such a company. These pictures would, of course, be taken on the stage, by flashlight. In this case, the use of theatre spotlights, which are arc-lights and therefore very actinic, is of great help.

Post cards, either originals or portraits reproduced on post cards, are sometimes very salable; and other novelties, such as the Taprell Loomis leather goods with small portrait reproductions or little pictures of the act or show may be found to go well. These extras work themselves out differently with varying local conditions and the alert photographer will be able to devise numerous little side-lines.

This is a field of which surprisingly few photographers are aware, and the man who gives it a trial is not likely to be disappointed in results if he produces the requisite quality of work. As Milton Waide would say, "It's all velvet," for whatever is made this way does not affect the photographer's regular business and puts him to no extra expense. And pictures, in the theatrical business, are a necessity, not a luxury.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A SMALL SAVING: The making of bromide enlargements is no small part of my work, and until recently a good part of my waste-paper basket contents consisted of the nice strong black envelopes in which each dozen sheets of the paper was packed. Now I save them all, paste my business sticker on the corner, use a white pencil for writing the name and address of the customer, and deliver no small part of my work in them. They do not look like a make-shift; in fact, have quite a novel and business-like appearance. One of my customers even went so far as to ask me if I wasn't getting a little "high-toned", using such good enclosures in which to send out my prints.—W. A. S., California.

FIXING ENLARGEMENTS: I do not know the chemistry of the matter, but my experience has led me to firmly believe that an acid alum fixing bath is not conducive to the permanency of bromide enlargements. The ill effect of a strong acid upon the hypo of the bath can be avoided by using potassium metabisulphite, this last having nearly if not all the clearing quality of the acid-alum concoction. It is best used by making a solution of one ounce of the metabisulphite to every four ounces of water of the stock solution, and then using of this last about four ounces to every pint of the hypo solution. If the metabisulphite is not easily obtainable, sulphite of soda can be used for making up the stock solution in the same proportions and adding sixty drops of sulphuric acid to every four ounces of the solution. In adding this stock solution to the fixing bath, use only about one-half as much as recommended for the metabisulphite solution.—H. Y. N., Missouri.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXV San Francisco, California, March, 1918 No. 3

Are We Too Serious?

We are,—and we are not. We are, all of us, entirely too prone to take ourselves rather too seriously, while falling far short of taking our work as seriously as we should. The one who goes on from year to year, using his camera as a means of securing an occasional batch of indifferent mementoes of a trip or vacation, excuses his failure to show improvement by explaining that he has not the time to go into the technique of photography, much as if doing so would really be somewhat beneath one whose time can be so much better occupied. The worker who has taken the time and trouble to achieve a good measure of technical skill, glories in his capabilities and is perfectly satisfied therewith. He can assure you that he has thrown away, as defective, many negatives that were just as weird, as "fuzzy" and out-of-focus as those used in producing some of the things shown as artistic productions on the walls of the salons. The exhibition worker, the one striving to produce the pictorial, has only sympathy for his brother photographer who has no appreciation of art and its requirements. And so on throughout the list. It is never a matter of photography, its requirements and its capabilities, but always the individual superior position in relation thereto.

If we would but give the matter a little serious thought, we might see the wisdom of looking at our photographic work in a more impersonal manner. Doing so, we might find ourselves with a more charitable inclination towards those who fail to agree with our own ideas on the subject. We might even realize that photography has capabilities in a number of directions, and that these expanded and enlarged as the effort and application of the one who would avail himself of them, are increased. And another fact would become apparent, the rather obvious one that, as there is no one special field that can claim photography as its own, the worker in one field can learn from his co-worker in another if he would but consider his work, rather than himself, of the major importance.

The pictorial worker, the salon worker, could, in a large number of cases, improve the pictorial quality of his work by acquiring a greater command of the technique of photography. He could profit also by a closer study of the ways and means employed by artists using other mediums, doing so with an eye to their application to his own work. The photographer who sees photographic excellence only in work of high technical quality, should realize that a knowledge of art principles, if applied, would add to the value of his productions by giving them an appeal to a larger number. He could, with an increased appreciation of photography and a decreased one of his own importance, perhaps realize that the lack of sharpness he finds in some salon pictures may not be entirely without reason back of the intent.

The real truth of the matter is that photography will give us about what we are willing to put into it. The one who has acquired an understanding of the principles of art will find the camera and lens quite responsive to his desire for artistic expression. The individual who is lacking in an appreciation of the pictorial will, no doubt, find pleasure in achieving, to a greater or less extent, the technical excellence that the mechanical nature of photography makes possible. In neither case is there any reason for the assumption that photography has but the one right and legitimate application. Our own part is but a small one, it is our work that really counts. And it is our work that we should take seriously. If we use the camera simply to record the scenes and events we may wish to recall at a later day, let us make these records good examples of such work. We should neither belittle the efforts of others who employ photography in a different field, or exalt the sphere of our own as the only one. Let us do our particular line of work as well as we can; and, in so doing, find that measure of satisfaction that results from all work well done.

Goods That Are Not Advertised

We are constantly receiving letters asking concerning the merits of this or that unadvertised camera, lens, plate, paper, or other photographic utility or material that has been brought to the attention of the correspondent. Some of these goods we know nothing about, others we know do not compare favorably with the advertised goods, and some few we believe to be quite meritorious, and consequently have no hesitancy in saying so. But these inquirers do not seem to realize that in writing us they are answering their own questions. Their letters are the result of their own lack of confidence in such goods, and this distrust is well founded. The photographer knows that practically all of the equipment and material that he is using and finds satisfactory, has been regularly and consistently advertised in the better photographic magazines, and he quite naturally feels some doubt as to the merits of goods brought to his attention in a less direct and logical manner. We do not mean to say that all goods not so advertised are unworthy of consideration; but, the fact remains that the unworthy, the unsatisfactory, is not so presented. It does not pay to advertise an article that fails to give satisfaction. In a few cases the producer, through the wrong presentation of his wares, found the results disappointing, and therefore condemns advertising. But these cases are exceptions, and they are never of any great importance, because the element of success is lacking. So we find that, generally speaking, the manufacturer who fails to advertise has a good reason therefor, and one such good reason is that his goods are not of a quality to produce repeat orders, the only kind that make advertising profitable.

A distinguished art critic has remarked: "The highest art is the imitation of the finest nature." That is to say, the imitation of that which conveys the strongest sense of pleasure or power in the sublime or the beautiful. The "ideal in art" is really the selection of a particular form which expresses most completely some character or quality, such as beauty, activity, strength and the like, and preserving the character consistently throughout its representation.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Wet Gelatine Emulsions

The *British Journal of Photography* reprints the lecture by Charles M. Thomas at the Royal Photographic Society, as below, not with the idea that the details will serve any purpose other than that the home preparation of gelatine emulsion suitable for the manufacture of lantern plates of slow speed. It is pointed out that this is an unwashed gelatine emulsion, and therefore differs essentially from those used for the coating of negative plates and bromide papers. Still the instruction and formulæ which he offers provide the material for simple experiment in emulsion making, such as is within the capacity of anyone having ordinary experience in photographic work. Mr. Thomas said:

No investigations on the gelatino-bromide process, invented in 1871 by Dr. Maddox, have been published in recent years, and the reasons are not far to seek. The first is the excellence of th modern dry plate, and until lately its cheapness, which rendered it unnecessary for the private user to pay any attention to emulsion making, and, secondly, it is a long process and involves many difficulties. The plates have, indeed, been improved of late years and the plate-makers have their own secrets, but save for an occasional note on some addition to secure orthochromatic qualities, little of any importance has been published.

I propose to demonstrate the making of an emulsion and to show that it pays to make one's own emulsion to produce a few plates, and at the same time affords the opportunity for experimenting, which was my own object in taking up the investigation. I wished to try the effect of adding various substances in the compounding of the emulsion, and also to see if an unwashed emulsion exposed wet would be suitable for lantern-slide making purposes.

I take thirty grains of sheet gelatine such as is used in making jelly, soak it well in distilled water for two or three minutes, and pour away the water to get rid of dust and soluble matter. It is placed in an ordinary bottle and made up to one and a half ounces with distilled water, and steamed in a Welbank boilerette until thoroughly melted, and is then filtered.

While the melting is taking place I weigh out two grams, or thirty grains, of silver nitrate, place it in a test-tube and cover it with a little distilled water. To prevent the silver nitrate attacking the gelatine it should be acidified with one to two drops of pure nitric acid of ten per cent strength. Two drops are, perhaps, more than enough, but it is best to err on the side of having too much rather than too little.

The bromide I prefer to use is the ammonium salt, as I think it is better suited for the wet emulsion than potassium bromide. The weight of bromide theoretically required to convert the slver nitrate into silver bromide and ammonium nitrate is insufficient, and gave me an insensitive emulsion and much fog. I found by trial that about six per cent over the theoretical quantity was necessary.

I take one and a quarter grams, or nineteen grains, of ammonium bromide and dissolve it in a little distilled water.

The melted gelatine is divided in halves in two beakers or measures, the silver nitrate is added to one and the ammonium bromide to the other, thoroughly stirred or shaken up, being warmed if necessary, and the two are slowly mixed with continual shaking. This mixing must not be done in a white light. As the emulsion is very slow, I find that a lamp screened with naphthol yellow and orange gives a good light and is quite safe.

When an emulsion to be used dry is being made, it is said to be customary to boil for three-quarters of an hour, pour into a flat dish, allow to stand till set, then squeeze through canvas into water, wash in several changes for from six to twelve hours, drain from the water, treat with alcohol and

again re-melt with a proportion of water added. The object of the washing is to remove the potassium or ammonium nitrate, which would otherwise crystallize out on the surface of the plate.

I propose to shorten the process this evening, as the plates are to be exposed wet, and no crystals will form.

In the first place, I shall add to the warm emulsion four one-hundredths grain of iodine dissolved in alcohol in order to get a clean working plate. I shall then boil the emulsion for ten minutes. If the boiling is continued for a longer time, the emulsion will be faster, but will not set at the temperature of this room, sixty-eight degrees Fahrenheit.

When the creamy emulsion in the beaker or bottle is removed from the boilerette it is full of bubbles, and must be filtered. To do this we take a little plug of cotton-wool wetted with distilled water, placed in the neck of a funnel, and allow the emulsion in the warm state to pass through. This will remove most of the bubbles and the remainder will be got rid of by adding from twenty to thirty drops of pure alcohol, which also facilitates the coating of the plates.

A small teapot is commonly recommended for holding the emulsion during coating. As you see, I am using a more primitive vessel—a lipped beaker. The emulsion is poured on at one end of the plate, which is tilted from side to side until evenly covered, and is then laid on a cool slab to set.

Having coated some plates, and while waiting for them to set, the lecturer said that the emulsion described would cost twopence for sufficient to coat between two and three dozen lantern plates, the bulk of the twopence being for silver nitrate. The cost of glass would be extra, but most of his audience would have by them waste negatives and slides which would only require cleaning. This he did by boiling them in soda water, washing them in tap-water, and soaking them in a ten per cent solution of nitric acid.

He had been working during the winter at a temperature of forty-eight degrees Fahrenheit. In the summer time it would be necessary to use a harder gelatine or to use ice to lower the temperature of the cooling slab, otherwise the emulsion would not set.

Proceeding to expose and develop one or two of the plates made, he said the speed of the plate would be about five H. & D. He had brought with him a filament lamp, but he understood that the electric current as supplied to the society was at a lower voltage than at his home, and the exposure would be largely guesswork.

It was found that the emulson on the first plate was barely set, and ran during the exposure. The second plate was set, but the exposure given was rather short.

He commonly used, he said, pyro-ammonia as the developer in cold weather and diamidophenol in the summer.

The coating of paper with the same emulsion was, he said, very simple, although he wasted a good deal of time over it at the beginning of his experiments. He had first tried Whatman's drawing paper, which cockled up on the slightest provocation and was very absorbent. After many trials he used an ordinary parchment writing paper. He made a frame the required size, squeezed the thoroughly wetted paper on the bottom of it, and coated in the same way as plates He diluted the emulsion with an equal quantity of gelatine solution, added a little more alcohol, and coated at a lower temperature. The great sources of trouble he found were bubbles, not in the emulsion, but from air in the paper. As soon as the emulsion was set he transferred the paper, face upward, to a sheet of waxed paper, which he pinned to his easel, thus giving himself a safe margin to handle without having to touch the emulsion. A number of enlargements made on the home-prepared paper were passed round.

Some Misconceptions In the Use of Light Filters In Multiple

A very remarkable article, by William Hood, appears in our contemporary, *Camera Craft,* upon the subject of using ray-screens or light-filters in multiple. As it is accompanied by some very excellent photographs, which, to all appearance, serve to confirm the author's very extraordinary theories, we feel it desirable to go into the matter somewhat in detail.

The question of the action of several light-filters, when used together, has often been discussed, and many strange theories have been put forward. Thus, it has been argued that two five-times screens used together make a ten-times' screen, and also that they make a twenty-five times' screen, the latter being apparently the opinion of Mr. Hood,

though the fallacy of the assumption has long ago been pointed out by Dr. Mees, and others who have made a study of the action of light-filters, and not relied on paper theories alone.

Mr. Hood says, "if the eight-times' screen and a ten-times' screen are used together, the time of exposure must be eighty times as long as if no ray-screen were used". He bases this conclusion upon "the fact that if light passes through any transparent or translucent substance by which its amount is reduced, the remaining light on passing through another piece of identical substance will be reduced in the same proportion". This last is a perfectly correct statement, which a more logical person would have at once perceived upsets the former one, as regards filter screens, altogether. One would have thought it evident that the essential function of a filter screen is to filter the light, stopping out certain wave-lengths only, but transmitting the rest, just as a filter-paper stops solid particles, but lets fluids through. It follows then that the general rule given by Mr. Hood can only apply to such wave-lengths as are stopped by the filter and not at all to others, which are not hindered. It will apply in its entirety to neutral-tinted screens which stop all wave-lengths impartially, but it is obvious that such a screen is not a filter at all, and can have no effect on gradation or color rendering. All it can do is to prolong exposure, and when we go into Mr. Hood's figures it becomes evident that his piling up of filter upon filter in the long run simply results in an enormous and quite unnecessary prolongation of exposure. In one case, for example, he uses two seventeen-times filters, one sixteen-times and one four-times filter all together, the result being, from his calculations, an eighteen thousand, four hundred and ninety-four-times filter. To anyone acquainted with the elements of orthochromatic photography such a thing is ridiculous, for even a Wratten G filter, which is capable of producing strong over-correction, has a factor of less than one hundred on an orthochromatic plate, and one of only eight on a panchromatic plate. Anyone knowing what this eight-times filter will do on a panchromatic, and further realizing the abnormal results produced by a three thousand-times infra red filter on a spectrum panchromatic plate, can realize the absurdity involved in speaking of an eighteen thousand-times filter.

A clue to the mystery is to be found in the fact that Mr. Hood speaks freely of seventeen-times filters, though he uses spectrum plates with which we may consider an eight-times filter a powerful one. * * * From this, it appears that he is using filters that have so much general absorption that the rule applying to neutral filters fits more or less well, while it is also obvious that so far as their color-correction goes, all that they can do in this way could be effected with a much shorter exposure. It should be clear that color absorption ceases when there is no more color to absorb, and if we have a filter absorbing ultra-violet and violet, and transmitting all the rest of the spectrum, its selective action ceases when there is no more violet to absorb. This matter has been dealt with very clearly in the Wratten book on "Orthochromatic Filters", in which it is pointed out that the increased exposure required for two filters can be found neither by adding nor by multiplying the separate factors. The answer must depend on the nature of the filters and on the plate.

Mr. Hood is equally astray in his instructions with regard to making allowance for the effect of the filters on focusing. He suggests that we can focus without the filters and then, if the screens are put behind the lens, increase the focal length by the sum of the thickness of the screens, while if the screens are in front of the lens the focus must be shortened by the same amount. If the screens are divided in equal thicknesses between the back and front of the lens, focus is not effected, all of which information is entirely wrong! Very materially so if three or four filters are to be used together. Assume that the screens have a total thickness of one-quarter inch. If behind the lens, the focus is thrown back not one-quarter but one-twelfth inch, that is one-third the thickness of the screens. If in front of the lens the effect is virtually that of removing the object one-twelfth inch further away, which will only necessitate racking in the camera for a fraction of one-twelfth inch, or, in most cases, for a quite negligible distance. It would be difficult to realize why Mr. Hood did not discover his allowances to be utterly wrong, but for the fact, revealed by the particulars he gives, that he evidently

favors small stops. In the six results he shows two are produced with f-16, two with f-32 and two with f-45, so the depth is considerable.

It will perhaps be interesting to quote his details in the case of one very ordinary type of subject that most of our readers have had to deal with at times. It is a woodland scene, taken under trees through which gleams of sunlight are percolating. The time is midday in October. The actinometer time (Wynne presumably) is eight seconds. A seven and seven-eighths-inch lens at f-16 is used, and a spectrum plate, of Wynne speed 192. The filters are two seventeen-times, one sixteen-times, and one four-times, which, by Mr. Hood's method of calculation, together make an eighteen thousand, four hundred and ninety-six-times filter. The manner in which from these data he arrives at the exposure is not exactly clear, but the final result gives an exposure of no less than twenty-six minutes and twelve seconds. Calculating, by Wynne, the exposure for such a subject for a plate of this speed used without a filter, the time works out at just about one second. Mr. Hood gives about one thousand, five hundred and seventy-two times as long, so apparently he allows less for the effect of the filters than his theory suggests, but still much more than can possibly be necessary.

Color Screens and Definition

One of the objections which have been raised against the use of light filters is that they are apt to interfere with the quality of the definition, so that a negative obtained by means of one of them will be wanting in fine detail. That this often is so anyone who sees much amateur work soon learns; but the loss of definition is not inherent in the use of a color screen, nor is it even due to the use of a cheap one instead of a screen with optically worked surfaces. It is caused by a failure to recognize the conditions of fine definition and to use the screen properly to secure them. The subject was discussed incidentally at a recent meeting of the Royal Photographic Society, and several interesting points were mentioned.

Difficulty with the definition is not likely to arise at all in the case of the ordinary short focus lenses, which are in most general use; it is when long focus, large aperture lenses are used, and particularly in the case of telephoto instruments, that certain precautions have to be observed if the definition is not to be impaired.

A color screen may affect definition in several ways. If the lens is not very fully corrected for color, the light passed by the screen may come to a different focus from the visual light used for focusing, and so the plate may not be actually at the position of finest definition, no matter how carefully the focusing has been done. This has given a good deal of trouble in three-color work in the past, where light filters are used which cut out large regions of the spectrum entirely. It was not merely that the picture had to be focused with the screen in position, but it had to be separately focused for different screens, and this introduced difficulties in getting all three negatives identical in scale, so as to register properly. To meet this, lens makers designed patterns in which the secondary spectrum was very fully corrected, and the trouble was thus overcome. It should be mentioned that this particular difficulty is not removed by the use of a very thin light filter.

Another way in which the color screen may affect definition is by altering the focus of the lens for all parts of the spectrum. The glass of the screen acts as a magnifier or supplementary lens, of a weak kind perhaps, but enough to affect the focusing. Even if it is optically flat, if it is introduced between the lens and the plate it will have the effect of displacing the focal plane to an extent equal to the thickness of the glass of the screen. This can be allowed for, and gives no trouble if we are careful always to do the focusing while the color screen is in position.

There is a third cause of poor definition, and that is an irregular action, owing to the screen not being quite flat and of equal thickness throughout. This is the most serious fault of all, as it is not to be remedied except by an alteration in the screen itself. Even carefully selected patent plate glass is not good enough when the conditions are very severe, and the glass used must be optically worked. Nor is it enough to obtain an optically worked screen; it must be fitted correctly, and must be free from any strain likely to interfere with its figure. Dr. Mees pointed out several years ago in this connection that the mere coating of the glass

with a film of gelatine was sufficient to destroy its flatness—the gelatine as it dries contracts and so pulls the glass as to give its coated side a concave form; and he described the methods which he had devised to overcome this.

For ordinary work one can form a very good idea of the flatness of a screen by observing the reflected images of some straight edge, looking obliquely at the glass. This is the way in which a piece of patent plate is generally selected: but at the R.P.S. Mr. Ferguson described a finer test. To make this, a distant object, such as a church spire, is carefully focused in a telescope, and then the glass plate or the color screen is put in front of the object glass. If the screen was really flat, the spire could be seen just as well as before; whereas if there was anything wrong the spire would appear confused or slightly distorted.

Much of the difficulty in the use of a color screen in such conditions as we are considering can be overcome by doing away with the glass altogether and using just a thin dyed film; and Major Campbell, at the meeting referred to, said that in his opinion a gelatine filter placed at the iris diaphragm or thereabouts was best: it did not affect the definition to any extent so far as could be discovered, and could be used with different lenses. This form of screen has the advantage also that it is very cheap: and, so far as we can see is open to no objection, except that the film is quite unprotected and so has to be handled carefully.—R. C. B., in *Photography*.

Reducing Bromide Prints Dry, Without Abrasion

Hitherto it has not been a practical proposition to attempt much in the way of local reduction on bromide prints, except in the case of large areas which could be treated with reducer whilst the print was wet, and those small blemishes which may be removed on the dry print by abrasive methods. The reasons for these limitations are that all the reducers recommended have been in watery solution, and if applied to a dry print are consequently liable to cause a surface mark. Moreover, if so used, even at the risk of surface marks, it is obvious such use must be extremely limited owing to the necessity of washing off after the first application. On the other hand, if used on a wet print, the reducer rapidly spreads, and its effect can neither be estimated with certainty nor can it be localized.

The recognition of these facts led the writer to the conclusion that if some reducer could be found which was soluble in alcohol or acetone, for example—some liquid, that is to say, for which gelatine has less affinity than it has for water, but one which quickly evaporates, and yet lasts sufficiently long and is sufficiently mobile to penetrate the film—these difficulties would vanish; and it would be possible to carry out reduction with a brush on the dry print to an unlimited extent.

Methylated spirit naturally suggested itself as the most suitable liquid. Acetone, owing to the difficulty of obtaining it at the present time, has not been tried. Very few chemicals used in reduction are soluble in methylated spirit. In fact, the list consulted showed only two, iodine and potassium cyanide; and, as luck would have it, these are the very two chemicals one would have chosen. For iodine and cyanide together make an absolutely non-staining reducer, and one which has long been regarded as the ideal reducer for bromide prints.

Experience soon showed that a solution of iodine and potassium cyanide in spirit acted exactly as was anticipated, provided the spirit was not stronger than about seventy-five or eighty per cent. It was also found necessary that a little potash or ammonia should be present to prevent the formation of blue iodide of starch, which otherwise would result owing to the presence of starch in the paper. A satisfactory solution was prepared as follows:

A: Iodine .....12 grains
Potassium iodide ..... 6 grains
Rectified spirit ..... 1 fl. ounce

This is practically the tincture of iodine of the "British Pharmacopoeia".

B: Saturated solution of potassium cyanide in pure rectified spirit containing about twenty-five per cent of added water.

Cyanide is, of course, a powerful poison, and must be treated as such.

C: Strongest solution of ammonia.

This is the ammonia .880 of the "Pharmacopoeia". All these should be kept in well-stoppered bottles.

The working solution is prepared as fol-

lows: One dram of A is taken, and B is added until the iodine is decolorized, and about as much additional B is poured in to make the cyanide in excess. Then half a dram of C is added, or sufficient to prevent the solution giving a blue stain on paper. The total quantity should measure about four or five drams, that is, the quantity of cyanide solution required will probably be about three drams for each dram of iodine solution. Cyanide, however, is of rather uncertain strength, and at present it is not possible to make the formula more definite than the above.

The solution must be further diluted with spirit in order to moderate its action for delicate work. Whether the mixed solution will keep for any prolonged period cannot yet be stated, but so far the mixed solution appears gradually to deteriorate. The solution should be water clear and colorless.

The dry bromide print, which may be in black and white, or even sulphide-toned, is pinned to a drawing board, and the solution applied with a suitable brush to the parts it is desired to lighten, the strength of the solution being reduced with a little methylated spirit for parts in which the gradation is very delicate, or which only require extremely slight reduction.

The action of the reducer must be watched, and as in some cases a few seconds only is the time required, there must be at hand, in fact, in the hand, a small bit of cotton or lint moistened with methylated spirit, which must be passed over the part the instant the action is seen to be sufficient, or rather, perhaps, slightly before it is deemed sufficient. This is followed by a wipe with a dry cloth, and the part is at once ready for a further application of the reducer, if required.

Since the action can be so quickly repeated without injuring or affecting the film in the slightest degree, it will be recognized that repeated action with a diluted solution is preferable to running the risk of over-reduction with a strong one. On the other hand, a slight touch with strong solution is sometimes indicated. A few trials will enable anyone to master the technique. The artistic side of the process—that is, the knowledge as to what to lighten—is another matter altogether, and is outside the scope of this article.

The most suitable brushes are sables as used for oils, not the water color variety. In Winsor and Newton's Series 51, the No. 00 or 0 to No. 3 or 4 is useful. For large areas a camel-hair brush may be used. The sables should be well rinsed in methylated spirit when laid aside.

It must not be considered that this process is recommended as a substitute for spotting the negative, or removing blemishes which it is known from the outset will have to be removed, although it is very useful in these directions. The value of this method of direct reduction on the print is rather in the great ease with which it enables the artistic worker to attain an extreme degree of refinement which could only be reached by indirect methods after many laborious trials. To the photographer accustomed to the limitations of bromide work, the power which it gives appears as something almost uncanny.

An obvious use for the reducer is in making an enlarged portrait from a small original. The picture "An Italian Boy," on the previous page, is from a half quarter-plate full length figure taken with the reflex hand camera, and in the ordinary way the face would have called for a considerable amount of skilful retouching. As a matter of fact, the negative was not touched. All the work on the face which would otherwise have been done by retouching was done on the print itself with the dilute solution. The background also, so far as the reduction of the darks was concerned, was done with the solution, in this case full strength. Of, course, in a background like this there is a considerable amount of after work with brush and pigment, which is really complimentary to the process of reduction. In a future issue, with the editors' permission, I may deal with a method suited to those who have no technical skill in the use of brushes.

A more ordinary use for the solution will no doubt be found in cleaning up foggy prints, the edges of postcards, or prints which are often fogged through the paper being old or kept under unsuitable conditions; probably also in cleaning up vignettes it may be useful.

It may also be used for negative work, but, owing to the thicker coating of gelatine, not quite with the same facility as on bromide prints.—T. H. Greenall in *Photography*.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Making Good Portraits

The average amateur, judging from his queries concerning the proper lens and other equipment, labors under a wrong impression as to what makes for a good portrait; rather, what makes for what they call and recognize as roundness and modeling in a portrait. At least, in the case of small heads, the lens has very little to do with it. It all depends on the lighting. A properly lighted head will have roundness and modeling, be it photographed with a Brownie or with the most expensive large portrait lens. A fair sized head photographed with a fair sized lens with a fair sized stop may look entirely too "wirey" to be satisfactory, showing skin texture, freckles and the like, much too sharp; but with proper lighting the modeling will be all that one can desire. Overcoming the sharpness can be done by interposing, when printing, a sheet of glass or gelatine between the paper and the negative or by making the image a little out of focus in enlarging. But no lens can convey the quality of roundness if the lighting is flat or otherwise unsatisfactory. The beginner should, before he tries to improve his portrait work by purchasing a special lens, learn to get the proper lighting on the subjects that he essays. A good way to do this is to experiment with some patient and obliging friend; and, if one such is not available, get a cheap plaster cast of a head and shoulders and experiment with that, perhaps staining it a dull buff tone in order to get away from its glaring whiteness. And it is not necessary to make so many exposures as one might imagine. Studying the effect on the groundglass will generally suffice; and later, as one continues the study he will find that he can "see" the lighting, see the disposition of the light and shade, and even recourse to the focusing screen will be unnecessary. Of course, one must first know something about the proper distribution of light and shade on the face to produce the modeling he wants. Take one of the heads engraved on our paper currency and try to duplicate the lighting. Notice that there is no absolutely white or absolutely dark portions; that the face is never divided absolutely equally as to light and shade, that the highest light is on the temple, on one side; that all the shadows fall across the face at an angle of about forty-five degrees; that the shadow of the nose, doing the same, just meets the corner of the mouth; that the chin, while a protuberance that catches the light, does not do so to the same extent as does the cheek, which last, in turn, does so less than the temple, and so on. Once you can so manipulate your lighting, by placing the sitter in the right position beneath it, by softening it with a screen if too harsh and by using a reflector on the shadow side if too unequal, as to produce a portrait of this kind, the standard portrait lighting, you will be in a position to attempt variations. Later, you can interest yourself in the slight modifications that different types of lenses will give.

Making a Comparison

We often find a worker quite sure that he has determined which is the best of two plates, two papers, two developers, or even the best of several, by actual use; and yet, he has done nothing of the kind. He has used a certain brand of plates for quite a period of time, when someone or some circumstance causes him to try another brand. The results are such that he feels quite sure that the new plate is much better than the one so long used, and a change is made. But there has been no actual comparison. The better results may quite likely have been due to a combination of favorable conditions that would have operated just as well had no change in plates been made. If an actual comparison is to be made, one of each of the two brands of plates under consideration should have been exposed on the same subject under identical conditions and then

given the same treatment in development. Even then the comparison may not be a fair one, as the developer used might be better suited to one plate than to the other. What the worker really wants to know is which plate will give him the best results with his own particular method of working. If he feels like mixing up the developer that is recommended by the manufacturer of both brands, well and good; he can make the comparative exposures and develop them separately in their respective developers. The idea is, however, that a test, to be any test worth considering, should be made with every variation in condition except that of the brand of the plate, eliminated as far as possible. Then and then only will any variation in the result be somewhat due to a variation in the quality of the plate, paper, or whatever it may be under examination. And then the experimenter has only determined which is the most suitable for his own method of working. The plate that gives one worker the best results may do exactly the opposite in the case of another. The personal equation enters into the question of the satisfactory working of different photographic products to such a great extent that it must be reckoned with in nearly all cases.

Saving Hypo

A correspondent writes to ask if there is any objection to using the hypo bath in which prints have been fixed, for fixing plates. The plan is an excellent one for two good reasons. It economizes hypo and it enables one to discard, without feeling that he is extravagant in the matter, a print-fixing bath of which he is not quite sure as to its fixing quality. Put in the fixing tank for plates there is no risk of its not working properly for the reason that he can always see when the plate lacks being fully fixed, something not so easy to determine in the case of a print.

Finding the Focal Length

In reply to an Ohio correspondent, we would suggest a plan recommended in a recent issue of the *Amateur Photographer,* described as follows: To verify focal length, put two lighted candles with their flames, say, thirty inches apart against a darkish wall background, put the camera midway between the candles, with the focusing screen ten and one-half feet, one hundred and twenty-six inches, away from a point midway between the candles. Focus sharply for the candle flames and measure their distance apart on the groundglass, say three inches. Divide object thirty by image three, getting ten, which call the "ratio" or *r.* Now multiply object-to-image distance one hundred and twenty-six by *r* or ten, result one thousand two hundred and sixty. Now add one to *r,* making eleven; square this, getting one hundred and twenty-one. Finally, divide one thousand two hundred and sixty by one hundred and twenty-one, getting ten and four-tenths, the focal length of the lens. This method is quite simple in practice, yet but seldom mentioned.

Hydroquinone Solution Turning Brown

In answer to an Ohio reader: Hydroquinone, in the solid state, or as it comes in the package or bottle, is only very gradually affected by the atmosphere; and, while it may become slightly brown, its strength diminishes but little if at all. In solution, it oxidizes much more rapidly if exposed to air, turning first yellow and then brown. This is all the more rapid if the solution contains any alkali, and this last often happens, even when only sulphite of soda has been used in making up the solution, through the latter containing an impurity of an alkaline nature. Mixed up with a perfectly pure sulphite and a little acid,—just enough to assure the absence of any alkalinity, the solution should, if well corked, keep for an extended period. The necessary alkali solution should be kept in a separate bottle and added as the developer is required for use.

Time of Tank Development

An Illinois correspondent wants to know if the time of development in a tank, the temperature being constant, is the same for all kinds of plates. It is not; the fastest plates or films requiring about double the time of the slower brands. The time given with the formula may generally be assumed to be about right for the most commonly used plates. A very slow emulsion will require quite a little less, say from twenty to thirty per cent; while an ultra rapid plate will require somewhat more, perhaps ten or fifteen per cent. For this reason it is not advisable to develop very slow and ultra rapid plates for the same length of time.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

I. P. A. Lantern Slide Interchange

The Eastern Division of the Lantern Slide Interchange is receiving the best of support, some twenty-five or more active workers now being enrolled. It has been necessary to send back to their makers several lots of slides, due to lack of quality, but in every case the member sending them has been found anxious to co-operate in securing a high standard of work by making them over and of better quality. The first circulating set is complete and on Monday, January twenty-first, was shown to the employees of the Sherwin-Williams Company, who expressed their appreciation and interest in the beautiful work. The second set is well under way and will start on its rounds as soon as completed. Mr. Farrow, the director, goes on to say that there is, of course, a lot of work and some expense attending his activities, but he feels that the pleasure the work has given him has well repaid him for his efforts.

Mr. Davies, who has charge of the Western Division reports his set practically ready to go forward, one or two members being rather dilatory after promising their slides. He suggests that our Pacific Coast members interested in lantern slides should not miss this opportunity of seeing both the Eastern and Western sets but at once send in five of their own slides for the latter.

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

A. E. Davies, Director Lantern Slide Division, 695 61st St., Oakland, California.

Arthur H. Farrow, Secretary Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS.

4450—F. P. Fox, Ambrose, No. Dak.
Vest pocket, 2½x4¼ speed and 5x7, various papers, of baseball pictures in action and views of interest; for scenery, water scenes, and views of interest. Prefer 2½x4¼ prints. Class 1.

4451—Harold A. Bellin, 103 Westminster St., Providence, R. I.
Lantern slides; for the same. Class 1.

4452—Wallace R. McBlain, Lock Box 365, Eldon, Iowa.
2¼x3¼, 3¼x4¼ and 4x5, developing papers, of portraits of people and children and general snapshot and time exposures; for the same. Object in exchanging is to better my own work, and if my prints do not prove satisfactory, I will return all prints taken in exchange. Class 1.

4453—Virgil Wagner, Route 1, Box 23a, Omak, Wash.
Class 2.

4454—Mrs. Bertha Miller, 840 Haring St., Cadillac, Mich.
3¼x4¼ and 3¼x5½, developing papers, of miscellaneous subjects, some interesting cloud effects, also fruit pictures; for anything of general interest, particularly artistic landscapes, marine and animal pictures. Class 1.

4455—James Dunlop, Route A, Box 43, Placerville, Cal.
Class 2.

4456—Harry J. Fromm, 170½ Catherine St., Elizabeth, N. J.
4x5 and smaller, also post cards, developing papers, of marines, railways, portraits, landscapes and buildings; for same, especially home portraits and accidents, wrecks, fires, etc. Class 1.

4457—Glenn L. Gebhardt, Box 129, Carbondale, Colo.
Class 2.

4458—Andrew M. Kopcock, 3040 Clark Ave., S. W., Cleveland, Ohio.
2¼x3¼ and 3¼x5½, various papers, of snow scenes, marines, landscapes, river scenes, street scenes, and children; for any kind, good work only; single weight paper, any color. Class 1.

4459—Louis M. Rommel, 1516 E. Franklin Ave., Minneapolis, Minn.
3¼x4¼ and 5x7, printing-out paper, of waterfalls, scenery and historical buildings; for the same. Class 1.

4460—Harry T. Kanda, P. O. Box 67, Gardnerville, Nev.
4x5 and 5x7, various papers, of portraits and landscapes; for the same. Lantern slides only, all kinds. Class 1.

4461—William P. West, 2707 East 4th St., Long Beach, Cal.
3¼x4¼ and 5x7, various papers, of mountain and beach views, also beauty spots in Southern California; for landscapes, views, and interesting places. Class 1.

4462—Edgar M. LeBaron, P. O. Box 48, Mesa, Ariz.
Any size up to 8x10, various papers, of cactus and Arizona scenes; for figure studies. Class 1.

4463—S. Maas, 831 So. Delaware Ave., Tampa, Fla.
Class 3.

4464—John W. Metsker, 221 W. Larwill St., Wooster, Ohio.
Class 3.

4465—J. A. Currie, 535 40th St., Oakland, Cal.
2¼x3¼, 1⅝x5½, and 5x7, various papers, of beach scenes, Honolulu and Canadian scenes, steamer scenes and art studies; for art studies, beach scenes, foreign scenery, etc. Send sample of your work. Class 1.

RENEWALS.

188X—Edward Truman, Burton, Ohio.
Class 2.

2500—B. P. Angle, Augusta, Wis.
Any size up to 5x7, various papers, of home portraits, general views, and some scenic views; for home portraits, general views, and anything artistic or interesting.
Class 1.

2835—Frank M. Remster, 69 Myrtle St., Bridgeton, N. J.
Class 2.

2885—George Macaulay, 167 Allen St., New Bedford, Mass.
3¼x4¼, developing papers or post cards, of marine and miscellaneous views, also a few speed views; for views of interest; especially mountain views. Good Work only.
Class 1.

3227—V. Rose Huff, Chagrin Falls, Ohio.
Prints, post cards and enlargements, of interesting subjects in good work and prompt exchange. Am a bit partial to marines, animal and child studies; lady members especially invited to exchange. Class 1.

3848—William Charles, Box 33, Basom, N. Y.
5x7 and smaller, developing papers, of landscapes, outdoor sports and figure studies; for anything interesting. Class 1.

3852—J. W. Jeffers, Henry Clay Fire Insurance Building, Frankfort, Ky.
Vest pocket, 3¼x5½, 4x5, 4¼x6½, 5x7 and 6½x8½, prints and post cards, developing papers, of landscapes, nude of children only, genre and pictorial work; for the same.
Class 1.

4001—Fred Weidmann, 1692 Second Ave., New York City.
Class 2.

4163—C. A. Heald, R. F. D. Box 26D, San Dimas, Cal.
Class 2.

4296—Jesse B. Hastings, Stony Point, N. Y.
Class 2.

4311X—P. A. Anderson, R. F. D. No. 1, Box 32, Joice, Iowa.
3¼x5½ and 5x7, of farm scenes, buildings, wild animals, birds, also a few speed pictures. Only good work will be sent and accepted. Post cards only. Class 1.

4314—W. E. Bowman, Dayton, Wyo.
3¼x5½, 5x7 and 6½x8½, single weight prints, of all kinds of views; for views, character and figure studies. Class 1.

4364—S. A. Schwarz, 590 West 172nd St., New York City.
2¼x3¼, 3¼x4¼, 4x5, 5x7, 6½x8½ and larger, various papers, of portraits, genre, landscapes, etc.; for the same. Only first class work sent or accepted. Class 1.

CHANGES OF ADDRESS

3085—Thos. W. Bradt, R. R. No. 4, Aylmer (West), Ontario, Canada.
(Was Bethany, W. Va.)

4049—Robert S. Blatchford, Magdalena, New Mexico.
(Was Reserve, New. Mex.)

4190—Harold A. Smith, 745 N. Monroe St., Stockton, Cal.
(Was Montello, Nev.)

4312—J. Leo Hafen, Farmington, Utah.
(Was Arco, Idaho.)

4346—E. McClymont, P. O. Box 522, Toronto, Canada.
(Was 202 Robert St.)

4351—C. H. Knowlton, 1932 University Ave., Berkeley, Cal.
(Was Vallejo, Cal.)

4418—W. S. Wilgus, 265 No. Meyer St., Tucson, Ariz.
(Was Bisbee, Ariz.)

4436—O. K. Brewer, P. O. Box 264, Fayetteville, Ark.
(Was Neosho, Mo.)

OUR BOOK SHELVES

A New Book on Canada

The recent press stories of the alleged activities of Canadian farm owners to attract American labor across the border, have centered interest on a district which is most ably treated in Archie Bell's new book, "Sunset Canada: British Columbia and Beyond", which The Page Company will add to its "See America First", Series next month. In this book Mr. Bell predicts that Canada will, in the future, supply the world with fruits, so favorable are conditions there for the production of this, as well as other kinds of edibles. In former days the British Columbia ranch was catalogued by the reading public as the place where the "younger son" of the typical English novel took refuge, invariably, in financial misfortune, but there will be a much sharper interest in this section as a possible "drawing card" for the none too numerous American farm workers.

Interest In the Latin Republics

That the people of the United States have a keen interest in their predicted trade supremacy over Germany in the Latin countries of America after the war, is indicated by the brisk demand for books about the lands and peoples destined to furnish us such profitable future markets. The Page Company, in answer to the demand, is about to issue revised versions of two of the volumes in its popular Latin Republics of America Series, "Brazil and Her People of Today" and "Mexico and Her People of Today", both the work of Nevin O. Winter. Evidently there is to be real preparedness for the trade war!

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

E. M. Hammond of Porterville has been in Herington, Kansas, since Christmas, visiting his parents and showing the youngsters some snow.

I. E. Wallace, formerly of Hefton Drug Company, Hanford, is now with Wright Brothers of Selma, California.

If D. M. Bain, formerly of Fresno, reads this item, let him send his address to the writer who has some good news for him.

Nathan Reiman has opened a kodak finishing plant in Stockton.

V. Covert Martin has his new studio in Stockton now running in full form.

Powell of Hanford was in San Francisco early in February, buying for the re-opening of his new studio, his former one having been dstroyed by fire on December fifth last.

Miss Lee and Miss Schwarz are holding the fort together at Bullock's, Los Angeles.

H. A. Parker of Pasadena is thinking of adding another girl to his place.

W. S. Valentine of Redding visited the city on a vacation early in February.

Eastman School Temporarily Discontinued

Some years ago the Aristo Professional School was started in a small way, its purpose being to assist the professional photographer in the latest and most approved methods of handling the American Aristotype Company's products. This name was afterwards changed to the Eastman School of Professional Photography, and each year its scope has broadened and enlarged, until in 1917, almost every step of the professional photographer's work has been covered. Showcase displays, salesmanship, accounting, posing, lighting, developing, retouching, printing, enlarging, mounting, short cuts, new money-making ideas—all these, and, in the last few years, the addition of commercial photography have enabled those attending the schools to keep thoroughly posted in the latest and best photographic methods.

The appreciation of the school by the professional photographer is fully realized, but it requires transportation for five or six tons of apparatus, and this must be moved promptly to enable its schedule to be maintained. We all know or should know, how necessary it is for the Government to keep food, supplies and munitions moving, and how severely the transportation facilities of the railroads have been taxed in the last few months. But one thing could be done—give up the school temporarily for the more vital transportation needs of the Government.

It is the right, the logical and unselfish thing to do and we feel sure our readers, much as they may miss the school, will forego the pleasure in the same spirit that has prompted them to have their wheatless and meatless days—to help win the war. The Eastman Company assures us that "After we win this war, the work of the school will be resumed."

Photographing Stopped In Panama Canal Zone

Frank Fonillo, Acting Governor of the Panama Canal Zone, has issued an order prohibiting employees from making photographs which show any part of the restricted area in the canal zone or any of the ships in transit through the canal or at the terminals. Only photographs of a purely personal or family character may be taken in the zone. Employees having previously made photographs in their possession which might reveal anything of value to the enemy are instructed to submit them for censorship before sending any of them out.

The Simplex Print Dryer

A new advertisement this month is that of the Simplex Auto Print Dryer, made by the Simplex Photo Specialty Company of 337-339 East Thirty-fourth Street, New York. Write them or the Pacific Coast

agents, Howland & Dewey Company, 510 South Broadway, Los Angeles, California, for a circular covering this machine and giving a list of some of the prominent users thereof. Until one has used a machine of this kind he can have no definite idea of the satisfaction that it can afford through the saving of time, trouble and space, not to mention the avoidance of the blotter nuisance and other troubles attending the usual method of drying prints. One of these all-steel dryers equipped with a General Electric motor costs something, it is true, but that is soon forgotten with the satisfaction one enjoys in turning out work quickly and in the best possible shape.

An Up-To-Date Repair Plant

S. Slayton, for over twenty years the leading photo-apparatus builder and repairer on the Pacific Coast, is now connected with the repair department of Henry G. de Roos. Mr. Slayton recently returned from the East where he inspected all the modern machinery and apparatus used in camera and shutter repairing, lens fitting and camera building, with the result that the de Roos repair plant is now unequaled by any in the West. The plant has been specially built, and will be operated under the careful supervision of Mr. Slayton, who will continue the manufacture of the Slaflex Focal-Plane camera, extensively used by newspaper photographers. Special machinery for tank manufacturing and other woodwork has been installed, as also a Swan Precision lathe for the most delicate and accurate work. This new department is equipped so as to turn out the finest class of work in the shortest possible time. A cordial invitation is extended to all to call and inspect the plant, the Repair Department, Henry G. de Roos, 88 Third Street, San Francisco.

A Special Announcement

The Central Dry Plate Company of St. Louis is sending out an announcement to the trade to the effect that the constantly increasing cost of material entering into the manufacture of dry plates, together with increased labor cost, compels a slight decrease in discounts, effective March first. In doing this they are passing on to their customers only a fractional part of this increased cost, a part that, while very small to each, will permit the maintainance of the same high quality that has always characterized their products. This, together with their increased facilities will permit of increased efficiency of service; these, combined with the promptitude and courtesy that is extended, should mean much to the users of Central Dry Plates. Dealers who have not been reached with this announcement of the slight reduction in discount should write the Central Dry Plate Company, St. Louis, Missouri, for a copy.

Paco Dryers Winning Success

The manufacturers, in a recent letter, advise that they have completed arrangements with all of the leading photographic dealers throughout the country for the sale of the Paco Dryers, the new model, the 1918, being a decided hit with the trade, as well as with the photographers. The dryer is the result of actual use in the large plant of the manufacturers themselves, and therefore meets practical working requirements with perfect satisfaction. The sales, since the first of the year, the letter advises, have been in excess of their highest expectations; those for the past two months exceeding the sales of any previous period of double that duration. This we are glad to learn for the reason that the Paco Dryers have been advertised quite continuously and consistently in our pages, and we have always taken pleasure in recommending it to our readers. An inquiry addressed to the Photographic Appliance Corporation, 116 South Fourth Street, Minneapolis, Minnesota, will bring descriptive circular.

Use of Victor Intensifier

While Victor Intensifier has no doubt quite a satisfactory sale in the stores, the fact remains that the average worker does not avail himself of the advantages that it offers to the extent that he should. This intensifier comes in powder, as well as liquid form, a No. 2 powder that makes eight ounces of solution costing only thirty-five cents at the store, or five cents additional by mail. The solution can be used over and over until exhausted, a given quantity being sufficient for about fifteen or twenty negatives of the size the solution will properly cover. This intensifier, while giving the greatest possible amount of intensification, can also be employed to secure only a slight increase thereof by cutting short the time of immersion.

It can also be applied locally so as to increase the contrast of certain portions of the negative and is indeed a most valuable assistant in the production of negatives that will give the best possible results. This intensifier is manufactured by the well known manufacturers of flashlight material, the James H. Smith & Sons Company, 3541 Cottage Grove Avenue, Chicago, Illinois, and can be obtained of all dealers throughout the country.

Taking Liberty Bonds In Trade

"I hope that the merchants of the country, upon a more careful consideration of the subject, will discontinue their efforts to sell merchandise and take Liberty Loan Bonds in payment", says Secretary McAdoo.

The Secretary states that he has no doubt that merchants offering to take Liberty Loan Bonds in exchange for merchandise are actuated by patriotic motives, but that such transactions tend to defeat a primary object of the bond sales, as they discourage thrift and increase expenditures. Bonds so taken in exchange in most cases are immediately sold in the open market, which tends to suppress the market price and adversely affects sales of future issues.

The strongest efforts are made by the Treasury Department to have these Government bonds purchased for permanent investment by the people and paid for out of savings, thus not only providing funds for the Government but effecting conservation of labor and material; exchanging them for merchandise therefore defeats this purpose.

"The Eyes of the Navy"

From the Navy Department we are advised that the Navy is still in urgent need of binoculars, spy-glasses and telescopes. The use of the submarine has so changed naval warfare that more "eyes" are needed on every ship, in order that a constant and efficient lookout may be maintained. Sextants and chronometers are also urgently required. Heretofore, the United States has been obliged to rely almost entirely upon foreign countries for its supply of such articles. These channels of supply are now closed, and as no stock is on hand in this country to meet the present emergency, it has become necessary to appeal to the patriotism of private owners, to furnish "eyes for the Navy".

Several weeks ago, an appeal was made through the daily press, resulting in the receipt of over three thousand glasses of various kinds, the great majority of which has proven satisfactory for naval use. This number, however, is wholly insufficient, and the Navy needs many thousands more. The Assistant Secretary, therefore, asks us to cooperate with the Navy, by announcing, in addition to the above general statement, the following salient features in connection with the Navy's call:

All articles should be securely tagged, giving the name and address of the donor, and forwarded by mail or express to the Honorable Franklin D. Roosevelt, Assistant Secretary of the Navy, care of Naval Observatory, Washington, D. C., so that they may be acknowledged by him.

Articles not suitable for naval use will be returned to the sender. Those accepted will be keyed, so that the name and address of the donor will be permanently recorded at the Navy Department, and every effort will be made to return them, with added historic interest, at the termination of the war. It is, of course, impossible to guarantee them against damage or loss.

As the Government cannot, under the law, accept services or material without making some payment therefor, one dollar will be paid for each article accepted, which sum will constitute the rental price, or, in the event of loss, the purchase price, of such article.

An Announcement

Movette, Incorporated, has purchased all the physical property of the Movette Camera Corporation, and is now equipping a new plant, in Rochester, for the manufacture of the Movette devices. A new sales policy, one embracing an exclusive dealer proposition, is under consideration and will be announced shortly. Any dealer interested will do well to address: Movette, Incorporated, Rochester, New York.

War Photographer's Ruse Gets Him Out of Prison

It is far from difficult to fool the much-vaunted German secret service, according to Captain Donald Thompson, war photographer. During 1914 and 1915, Captain Thompson, then a press photographer, passed in and out of the German lines constantly, and carried many dispatches for United States

consuls and relief workers in Belgium. The photographs which he took of the Germans proved of value to the British secret service because it located various German regiments from insignia on their uniforms. The Germans decided that Thompson was a spy and posted orders that he be arrested if he returned to Germany.

But Thompson when ready to go back, wrote a story about himself, describing himself as strongly pro-German, carrying an interview with himself in which he said that the Germans had never been guilty of atrocities, and he strongly attacked the English. The article further said that the British were lying when they said that his pictures had been of value to them. This article was set in type and a proof pulled beside the advertisement of a New York department store. Over this was run a head of *The Brooklyn Daily Chronicle,* a paper which does not exist.

This proof was torn out carelessly to represent a clipping from an American paper and folded into Thompson's pocket. He then marched into the German lines. He was promptly arrested and thrown into a dingy prison, searched, and all his papers removed.

"Some two hours later", as he describes the incident, "I saw a file approaching the cell door. First came a sentry with a lantern. An officer followed him and behind came orderlies bearing a basin of warm water, clean towels, sandwiches, beer and cigars. I knew then that they had fallen for my bluff.

"I was released with profuse apologies, given the freedom of Germany and dined and wined by notables of Berlin. The German government gave me considerable money to expend for them in propaganda work. This went far towards paying my expenses and kept me in spending money for many a day."—*The Detroit News.*

Get Out Some Post Cards

Not a few photographers could add considerable to their income and to their own prestige by getting out a series of local view post cards for sale to the trade in their town. There are also not a few orders that could be picked up for post cards for advertising purposes if the photographer would only be prepared to show samples and quote prices on good work. The Photographic Appliance Corporation, 116 South Fourth Street, Minneapolis, Minnesota, have been turning out photographic post cards of the highest quality for photographers all over the country for a number of years and our readers should get in touch with the firm and see if the facilities they offer would not allow them to increase their business and their profits as well.

The Duplex Rotary Dryer

A new advertisement in this issue is that of the new 1918 model of the Duplex Rotary Automatic Print Dryer, a decided improvement over the machine put out last year, despite the high quality which the latter possessed. The double drums and double, continuously-moving cloth webs or belts, give a degree of efficiency that commends this machine to large producers of photographic prints. Another special feature is the adjustable roll above the print tray which provides for the prints being delivered either perfectly flat or with either a concave or convex curvature, as desired. The machine is of superior design and construction, steel frame and steel tubing rollers,—except the two end rolls for the outer web, assuring solidity and long life. Those interested should write for descriptive circulars to Herbert & Huesgen Company, 18 East Forty-second Street, New York.

Illinois College of Photography

Mr. Shaver, who is a student of the photographic department, demonstrated that he is still a "young Shaver" by catching a case of mumps.

Walter Barg, late of the photo-engraving department, has a position in Chicago. He paid the College a pleasant visit during the five days of Government closing.

Mr. Penglase, class of 1916, passed through Effingham on his way from camp to New York City. He was on official army business, having a group of soldiers in his charge.

Felix Raymer, for many years an instructor in the College, is now in business at Austin, Texas. He has two I. C. P. students in his employ, and would like to have two more.

Miss Evelyn Fox, class of 1915, who has been employed in a studio in Alberta, Canada, for over two years, and whose employer recommends very highly, expects to open a studio of her own in the near future.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted free. No business advertisements accepted.

WANTED Pair condensing lenses, 4x5 square or 6½x8½ diameter round. Also baby arc with rheostat. State condition and lowest cash price. Address Wallace S. Allen, 908 East 20th Ave., Denver, Colo.

FOR SALE Paying studio, lot and full equipment, no opposition, large district, good prices, in going order. $2600.00, $1200.00 cash, balance $20.00 per month with no interest. Genuine snap. Ben Calvert, Vermilion, Aberta, Canada.

POSITION WANTED With some kodak finishing shop, 12 years experience on commercial work; Maine, New Hampshire or Massachusetts preferred. J. R. Meservey, Pittsfield, Maine.

GROUND FLOOR Studio for sale. Town of about 3500 with steady payroll. Other business requires my attention. W. N. Wood, Fort Bragg, Cal.

FOR SALE A fine little studio in one story brick building, just a few steps from best corner in good home town in Southern California; population over 8000 with at least 15,000 within three miles. Rent $20.00; kodak and framing departments will pay all expenses. No other studio, good prices and unlimited possibilities for a good man. Town has 5 bakeries, 11 barber shops, 14 churches, 5 drug stores, 27 groceries, 7 butcher shops, 3 newspapers, 9 drygoods stores and all other lines well represented. A good all-round man and hustler can clear $3000.00 a year. Deafness and failing eye-sight compel owner to quit. Will sell for $1200.00 or might consider part in clear real estate or good auto. Address P. O. Box 444, Alhambra, Cal.

FOR SALE 5x7 R. B. Conley, 16-inch leather bellows, 100 sec. B. & L. shutter, R. R. lens, including leather case for camera and 6 holders, good condition; $15.00. Sig Schwarz, 127 East 16th St., Portland, Or.

FOR SALE Portrait lens 4x5 f-5 in focusing mount, 9-inch focus, nearly new $15.00. Sig Schwarz, 127 East 16th St., Portland, Or.

MISSION PHOTO Studio at Santa Clara, California, for sale; $150.00 cash, partly furnished. Town 5000, no opposition, ground floor, rent $12.00. Address Mission Studio, Santa Clara, Cal.

HOLLAND METOL One-ounce $1.70, 4-ounce, $6.00, 8-ounce $11.50, 16-ounce $22.00. Adolph Turnbull, 2433 W. Lake St., Chicago, Ill.

5 x 7 VIEW Camera and entire outfit, excellent condition, two-foot bellows, half price; fine for all classes commercial work, enlarging, copying. Write H. B. Brubaker, Wyomissing, Pa.

POSITION WANTED Young man, kodak finishing; can operate any size plant with efficiency. Know how to please the amateur. Will hold the business you now have and get more if you want it. Further information on request. G. T. Bowman, 1011 So. Main St., Ottowa, Kans.

4x5 GOERZ Anglo camera with f-4.8 Celor anastigmat, 3 plateholders, price $40.00, perfect condition. Address M. E. B., care "Camera Craft", San Francisco, Cal.

POSITION WANTED By a young man as printer or general assistant, now employed but will be able to accept position by March 15th. Robert E. Fenton, 242 Kentucky Ave., Evansville, Ind.

POSITION WANTED By young lady, experienced as general assistant, printer and finisher. Desires a place where can retouch part of time and a chance of learning moving picture photography. References furnished. Address N. A. M., care "Camera Craft", San Francisco, Cal.

FOR SALE One 8-inch Cirkut outfit with 10-inch Turner-Reich anastigmat lens; one 10-inch by four feet printing frame. Used only four months. Will ship to any responsible dealer for inspection. Price $150.00. Frank Begole, 2532 Tulare St., Fresno, Cal.

GRAFLEX 4x5, recent model, finest condition, new Bausch & Lomb Unar lens f-5, plate magazine accompanies. Bargain at $75.00 or nearest offer takes it; by express subject to examination. V. A. Wood, Hackensack, N. J.

FOR SALE Revolving Auto Graflex, size 4x5, lens 5x8 Bausch & Lomb Zeiss Tessar, 8¼-in. focus; film pack adapter, Graflex roll holder, 2 plateholders, tripod and leather case. Price $140.00. C. Giugui, Mountain View, Cal.

FOR SALE Marion's Soho Reflex, 3¼x4¼, new swing front, revolving back, 8 plateholders, film pack adapter, carrying case, perfect condition $75.00; also Portland Pictorial lenses, f-4.5, 6 in. and 9 in., $15.00 and $20.00. Also Ernemann vest-pocket camera f-6.8 anastigmat lens, groundglass back with hood, 9 plateholders, antinous release, changing bag. Elizabeth Peebles, Hillside Road, Boulder, Colo.

WILL BUY Indian photographs, also figure studies and bathing views. Nothing smaller than post card size. Dr. F. D. Snyder, Box 371, Ashtabula, Ohio.

WANTED Photographer who understands all branches of studio work. Must be good retoucher and portrait finisher. Wages $150.00 per month for eight hours. Send references and samples of retouch in first letter. Address Box 1647, Anchorage, Alaska.

SALE OR EXCHANGE 1A Speed Kodak, focal plane shutter, f-6.3 Zeiss lens with carrying case, all in excellent condition. Cost $62.50, will sell for $30.00 or will exchange for 3¼x4¼ plate camera with double extension bellows and convertible lens. Dr. W. D. Vehe, 1010 Donaldson Bldg., Minneapolis,, Minn.

STUDIO WANTED In small California town of about 2000 population. Must be at a reasonable price. Address Box 23, Route No. 1, Haywards, Cal.

RETOUCHER WANTED Young lady required for Calgary studio. Must be experienced. Good class trade; permanent. Write with particulars, send samples of work and own photo if possible in first letter. The Courtland's Studio, Calgary, Alta., Canada.

FIGURE STUDIES Wanted for calendars, advertising novelties, etc. Send price and postage if prints are to be returned. C. W. Henry & Son., Dilworth, Okla.

STUDIO WANTED In California, coast town. Address E. E. C., care "Camera Craft", San Francisco, Cal.

FOR SALE One No. 3, 8x10 Century portrait camera with sliding back and 8x10 curtain holder, with No. 3 studio stand. One 5x7 Conley portrait lens, one 5-inch Packard shutter, outfit complete $35.00, good as new. Smith's Photo Shop, Colville, Wash.

CAMERA WANTS—Continued.

WE PAY HIGHEST Cash prices or make liberal allowance in exchange for Newman & Guardia "Sibyl" cameras, Adams "Vesta" and "Minex", Ica "Icarettes", models A or B; "Trix", A, B, or C; "Ideal" A, B, or C; Ica "Jewell", Voigtlaender "Alpine" and "Bergheil Tourist", Carl Zeiss double "Protar" and "Tessar" lenses, Ross "Zeiss", Ross "Homocentric", Ross "Telencentric", Dallmeyer large "Adon" telephoto, Voigtlaender "Heliar" and "Collinear" Series II lenses; also Goerz V. P. roll film cameras. State condition and spot cash or exchange price wanted. We offer you the choicest selection to choose from. No bargain lists so-called issued. Write us what you want; if an exchange is desired, describe fairly your camera or lens; we will be pleased to co-operate with you, as we back our experience with twenty-seven years catering to the most discriminating photographers in the U. S., Canada and South America. You eliminate all chance of guesswork. Carmichael's 111 Summer St., Boston, Mass.

WANTED TO RENT Photo studio in town of 2000 to 7000, without competition; Central or Southern Wisconsin preferred. Address Lock Box 444, Warren, Ill.

WANTED A lady assistant who understands reception room work. Must either be good retoucher or printer. Permanent position for right person. Address Box 75, care "Camera Craft", San Francisco, Cal.

SALE OR EXCHANGE Seneca folding 5x7, Velostigmat f-6.3. Unar speed lens f-5, 6-inch focus. Empire State view, 8x10. All above same as new and perfect. Want Graflex Junior or other small camera. Rev. V. A. Wood, Hackensack, N. J.

FOR SALE An 8x10 studio and view camera, A1 condition, Dallmeyer lens, darkroom outfit and complete equipment, $125.00. R. F. Stern, 201 Charter Oak Ave., San Francisco, Cal.

POSITION WANTED By young man now in colories, to pose as a model to artist for the nude figure and in different costumes (oriental and antique preferred); prefer together with young boys, can also assist as receptionist, etc. No objection to any pose to be taken, also for movies; photo at disposal. Address Hermes, care "Camera Craft", San Francisco, Cal.

WANTED English half-plate camera, no lens. Prefer Henderson "Popular" or similar make. Long bellows. State lowest cash price. Motter, care Union Litho. Co., San Francisco, Cal.

FOR SALE 9½-in. 5.6 Cooke lens in Optimo; also has original barrel, $50.00; 12½-in. 6.3 Velostigmat in Optimo, $50.00; Bausch & Lomb Protar wide angle, 5x8 (new), $20.00; 16½-in. f-6 symmetrical, $25.00; new Eastman 8x10 view camera with enlarging back, $30.00. No. 2 new. J. S. Anderson, Omemee, No. Dak.

FOR SALE Best studio in the very best town in Sacramento Valley, California, where oranges grow in abundance. Owner must change climate account of asthma. Will invoice $1400.00, $700.00 cash takes it. Address Snap, care "Camera Craft", San Francisco, Cal.

FOR SALE Studio: the facts are: $15.00 rent, 10,000 people in nearby towns, no competition in county, electricity, running water, etc., $200.00 cash, $50.00 per month, which can be paid from profits above living expenses. M. H. Baldwin, Box 371, Jackson, Cal.

KODAK FINISHER Wanted, lady preferably, may board and room with family. State age, experience, salary, etc. Rich Studio, Bemidji, Minn.

WANTED A high class printer and retoucher; permanent position, good salary, but must be good. All particulars with first letter with photo. Could also use a good operator. Scott Studio, Tacoma, Wash.

I WILL PAY CASH For number 17 or 18 Bausch & Lomb series IC Zeiss Tessar in barrel. H. E. Smith, Clinton, Ill.

FOR SALE No. 8 5x7 Seneca camera, carrying case, plateholder, 5x7 Velostigmat f-4.5 lens in Regno shutter, steel tripod and ray filter, equal to new, all for $50.00. Will sell separate. Frank X. Flieri, 37 John R. St., Detroit, Mich.

FOR SALE Cirkut outfit No. 8, Goerz Dagor lens No. 6, Compound shutter, Bausch & Lomb telephoto attachment; Bausch & Lomb Zeiss Protar 5x8 and Goerz Hypergon 8x10 wide angle. All guaranteed; ten days trial, make offer. Max Miller, Lents Sta., Route 3, Portland, Or.

RETOUCHING AND Coloring. Miss B. Ashworth desires the work of a few firms; country orders solicited. Return express paid. 626 Grove St., San Francisco, Cal.

POSITION WANTED By a Japanese with general knowledge and good experience in photo business, prefers studio work. N. Nishida, 1624 Post St., San Francisco, Cal.

POSITION WANTED By married man, age 32 years. Has had two years experience in small studio of his own, eight years as salesman photo supply house, year and a half as buyer and managing correspondence. Address R. R., care "Camera Craft", San Francisco, Cal.

FOR SALE The Mullikin Man Studio, Ft. Lauderdale, Florida, county seat Brayward County; population 5000 and tourist city. Great amount of winter farming. 8-room studio, including living rooms, operating room, 15x30 feet; north light on corner; no competition; rent $20.00 per month, with 4-year lease. Best fitted studio in Southern Florida; value $3500.00. Good business the year round. Most beautiful climate in the world. For quick sale $1000.00 gets business and paraphernalia. A snap. Satisfactory reason for selling. Address The Mullikin Man, Ft. Lauderdale, Fla.

FOR SALE An artistic studio in a most promising and productive farming community in the Middle West, population 10,000, with same amount to draw from nearby towns. Receipts last month over $1000.00; rent reasonable and best location. Will sell for $750.00 cash, am quitting the profession. Address E. Weyle, Box 930, Twin Falls, Idaho.

SELL OR TRADE Ingento 11x14 enlarging or reducing camera. Shoberg portable skylight, good as new; want 5x7 speed Graphic, no lens, Oliver or Underwood typewriter, like condition. H. Schlomer, Cherokee, Iowa.

STUDIO CAMERA 5x7 multiplying, with shutter, lens and stand complete to exchange for folding camera, 3¼x4¼ or smaller. Wells Fargo Agent, Brooks, Or.

PRESS GRAFLEX 5x7 Bausch & Lomb Tessar to exchange for good stereo camera or sell cheap for cash. Wells Fargo Agent, Brooks, Or.

FOR SALE Kodak finishing business in town of 40,000. For further information, address E. J. Lenz, Dubuque, Iowa.

FOR SALE Studio in Minneapolis. Rent reasonable. Fine patronage. Business as healthy as any in city; 40,000 negatives on file. Consider cash offer at invoice price or trade for improved real estate. Address H. E. H., care "Camera Craft", San Francisco, Cal.

FOR SALE Ground floor studio with first class equipment. On main street in one of the best towns in Western Minnesota, with no competition. Must sell at once and will sell at a sacrifice, as I am called to the service. Address Photographer, Browns Valley, Minn.

FOR SALE Photo studio fitted up to 8x10, portrait and view; single north light. Will sell or rent building. If outfit is bought must have $1000.00 to invest. Address G. Spykerman, Boyden, Iowa.

CAMERA WANTS—Continued.

FOR SALE Studio and store, separate entrance to studio besides through store, good class of trade and best prices. Store handles stationery, picture framing, kodak supplies. Good kodak finishing business. Growing college town in one of the best orange districts in the state. Frashers, La Verne, Cal.

PARTNER WANTED An excellent Los Angeles business, built up by an expert along several distinct lines of commercial work, only requires a new plant, equipment and publicity, in order to create the largest reproduction business on the Pacific Coast. Entire plant will be along new lines of efficiency production which will eliminate the possibility of all competition. An investment of $7000.00 for these purposes, offers an interest and position, to the right party, in a sound, legitimate enterprise of considerable magnitude. Address Expert, care "Camera Craft", San Francisco, Cal.

FOR SALE Only studio in live town of 1200 in heart of famous Big Bend wheat country. Many little towns to draw from. Good kodak trade. Must sell because I am physically unable to care for business. $500.00 cash takes it. Jasmann Studio, Odessa, Wash.

PHOTO MINIATURES For sale. 95 copies, all different, of most important ones published from 1 to 124. First 32 copies cloth bound. Write for complete list. Address A. S. D., care "Camera Craft", San Francisco, Cal.

POSITION WANTED By A1 operator and retoucher, experienced in all branches, including home portraiture. Wishes position April 1st in first class studio only. Salary to start $25.00 per week. Address S. P. W., care "Camera Craft", San Francisco, Cal.

A CHANCE For an all around photographer, capable of handling home portraiture, to connect permanently with a going photographic firm. State qualifications and resources at once. The Campus Picture Shop, 1319 Washington Ave. S. E., Minneapolis, Minn.

WANTED Korona camera, 7x17 or larger, with or without lens. Have 6½x8½ camera with 10x12 attachment, B. & L. lens, 7 plateholders, tripod, case, complete—trade or sell. H. De Long, 3220 W. Monroe St., Chicago, Ill.

WANTED 8x10 Seneca view camera, 30-inch bellows, with sliding front. Smith's Photo Shop, Colville, Wash.

FOR SALE 3A Burke & James reflecting camera, Goerz Syntor 5x8; box cost $75.00, lens cost $50.00, both for $45.00. Goerz Anschutz camera, original dopple anastigmat focal plane 3¼x4¼, 6 plateholders, case, outfit costs over $100.00, price $50.00. 4x5 Dallmeyer Stigmatic f-6 in Koilos shutter to 1/300, cost $76.00, price $32.50. 8x10 Competitor view camera, Scientific anastigmat lens, Wollensak shutter, cost $90.00, price $27.50. Can use Colts or Savage Automatic in trade. Ship subject to examination upon receipt of express charges. H. Liss, 445 Court House, Minneapolis, Minn.

SALE OR EXCHANGE 8x10 portrait outfit (lens, camera and stand); lens in perfect condition and balance of outfit in working order, cost price $65.00; would exchange for post card Graflex. Address Box 24, Eugene, Or. Outfit can be seen at Hirsch & Kaiser, 218 Post St., San Francisco, Cal.

FOR SALE Only studio in flourishing San Joaquin Valley town. $4500 business last year. Must sell. Price $1200.00, well worth double. Address F., care "Camera Craft", San Francisco, Cal.

FOR SALE No. 3 Compound shutter $10.00, 8-inch B. & L. mounted condenser $14.00, 9 power prism Monocular $15.00, 4x5 B. & L. IC Tessar lens in No. 2 Compound shutter $50.00. Every article new and in first class condition. Address M. R., care "Camera Craft", San Francisco, Cal.

WANTED Good camera, view preferred, for first nineteen volumes of "Camera Craft" complete, some "Photo Beacons", some "Photo Eras", a few "The Camera and Darkroom", a few "The Camera", one "American Amateur Photographer" and "Camera and Darkroom", and a few "American Photographys". Arthur P. Alexander, 2717 33rd St., Sacramento, Cal.

WANTED 3A Graflex complete. Risen Studio, Alturas, Cal.

WANTED Convertible f-4.5 lens of 4-inch focus mounted in No. 0 Compound shutter with speeds up to 1/250th second. Ross Homocentric or Goerz Dogmar preferred. State condition and price. H. G. Frederick, 322 Mansfield Ave., Spokane, Wash.

FOR SALE Judkin's Studio, Santa Maria, California. Fully equipped for all classes of work; electricity, gas, water, north light; one other studio; lively town with valley 10,000 population; bean farms and oil district; good business; owner has just passed away. Bargain for cash. G. L. Willett, Box 211, Santa Maria, Cal.

PIECE RETOUCHING First class Japanese retoucher will work by piece. N. M., 1422 Geary St., San Francisco, Cal.

FOR SALE Old established studio. Modern with all new equipment in county seat town. Reasonable rent. Address Chas. L. Nelson, Blue Earth, Minn.

FOR SALE Only studio in live Southern Michigan town of 2200. Cosily furnished and well equipped. Must be sold at once. S. D. Joy, Constantine, Mich.

WANTED To Rent—Studio in town of from 2000 to 8000 without competition. Southern or Central Wisconsin preferred. Address Lock Box 444, Warren, Ill.

WANTED To Buy—Good paying studio in town of 1500 to 2000 population. Give complete description of what you have to sell in first letter. Address B. E. Litts, Spirit Lake, Iowa.

POSITION WANTED As printer and finisher. Address Miss Anna Sura, Holdingford, Minn.

WANTED 4x5 Graflex, Reflex or Hall Mirror, second hand. Must be in good working order, no lens. Box 51, care "Camera Craft", San Francisco, Cal.

FOR SALE 1A Premoette Sr. camera, 2¼x4¼, f-7.7 anastigmat lens, leather carrying case and portrait attachment, $11.00; Busch Omnar anastigmat lens, 7½-in. focus, f-5.5 in Wollensak shutter, $18.00; Korona 5x7 plate camera, reversible back, R. R. lens, 5 plateholders, leather carrying case, flash pan and focal plane shutter, $12.00; suitcase for 5x7 view camera outfit, $2.00. Ralph A. Scobey, 1215 So. State St., Syracuse, N. Y.

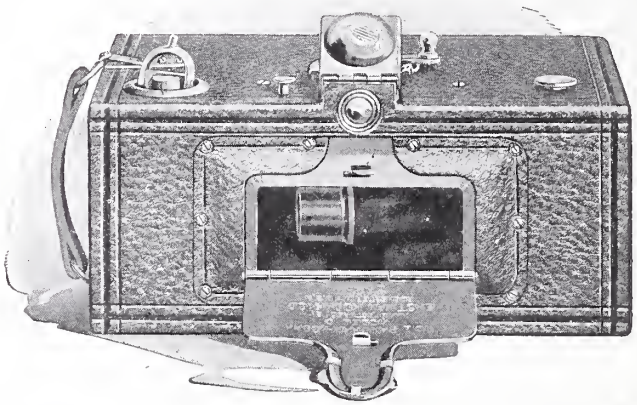
FOR SALE Finely built photo car without truck. Size 10 ft. wide, 24 ft. long, 7½ ft. high. Built of No. 1 first class ceiling with best rubber roofing. Well painted, and only one year old. Furnished with 4x6 darkroom, built of first class ceiling. Wired for electric lights. Cost to build a year ago $175.00; $85.00 takes it. Address H. C., care "Camera Craft", San Francisco, Cal.

FOR SALE 12-inch Goerz Dagor f-6.8 for 8x10 work, in barrel, good condition, $55.00 cash. W. H., 724 First Avenue South, Phoenix, Ariz.

G. E. BIDDELL & CO. CAMERA DOCTORS 53 FOURTH ST., NEAR MARKET SAN FRANCISCO, - CALIFORNIA

Eastman Kodak Company

ROCHESTER, N. Y., *The Kodak City.*



Plan for Panoram Photography

Now that spring is just over the page and vistas of green meadows and foliaged slopes are to be things of fact rather than of the memory—now is the time to plan for panoram photography. For it is just the sort of scene that a spring walk or motor trip is sure to lead you that can best be interpreted through the panoram picture. Ordinary cameras can give you but a part of the view—the panoram camera with its swinging lens gives you the whole view with a single exposure.

Kodak compactness and convenience have invaded the realm of panoram photography and have produced the Panoram Kodak. As a result anyone can conveniently and easily make good panoram pictures. Landscapes in their entirety, clusters of buildings, out-door groups, mountain scenes, all mean work for the Panoram Kodak and pleasure for you.

There are two Panoram Kodaks, the No. 1 and No. 4. Each is of the same careful construction, with covering of genuine leather and nickled fittings. The No. 1, however, makes a picture 2¼ by 7 inches, and its lens swings through a scope of 112 degrees; the No. 4 makes a picture 3½ by 12 inches and swings through a scope of 142 degrees.

THE PRICE

No. 1 Panoram Kodak - - -	$13.50
No. 4 Panoram Kodak - - -	22.50

EASTMAN KODAK CO. TESTED EK CHEMICALS ROCHESTER, N.Y.

Look for this seal on the chemical container—and find it.

It means that the chemical or chemical preparation so branded has completely satisfied experts who are paid to find flaws.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

At your dealer's.

Eastman Kodak Company

ROCHESTER, N. Y., *The Kodak City.*

EASTMAN VISIBLE GRADUATE.

Most things that fall short of requirements exhibit these short-comings most clearly in broad daylight. This is not the case with graduates, however. In daylight they appear to answer every purpose—but back in the dark-room where the real test is made they don't live up to the specifications. Under the ruby lamp you can't read their markings. Possibly you have poured out one ounce—possibly one and a quarter, and possibly three. You have to use your own judgment. The graduate seems to feel that it has done all that can be reasonably expected of it when it holds the solution without leaking. Other information such as the reading on its graduations, it keeps to itself.

Herein is the difference between ordinary graduates and the Eastman Visible Graduate—you can always read the graduations on the Eastman Visible. They are opaque, not translucent, and they stand out like newspaper headlines.

THE PRICE

2 ounce	$0.25
4 ounce	.35
8 ounce	.50
16 ounce	.75

TWO METHODS OF DARK ROOM ILLUMINATION.

Where electricity is not available in the room or corner of the room where the amateur has staked his claim, the Kodak Dark Room Lamp offers an eminently satisfactory solution. It is oil burning while its broad wick maintains a soft, steady light; and inasmuch as it is fitted with both orange and ruby glass this light is safe. The price of the Kodak Dark Room Lamp No. 2 is $1.00.

Where electricity is available, the Brownie Safelight Lamp gives a professional touch to the amateur's impromptu dark room. So convenient it is—just screw in any electric light socket; so small it is—just a bit bigger than the bulb it holds; so generally serviceable, that no amateur's dark room is complete without it. It is fitted with two safelights, Series I, which are removable so that safelights of other series may be inserted if desired. It is constructed of metal neatly japanned.

The Brownie Safelight Lamp gives you light you can be sure is safe. The price is $1.00.

Eastman Flash Sheets

give you illumination ideal for photographic purposes when and where you want it.

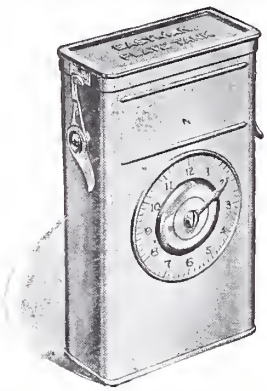
If you want a copy of the little free booklet, "By Flashlight" all you have to do is to let us know.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

At your dealer's.

Eastman Kodak Company

ROCHESTER, N. Y., *The Kodak City.*



EASTMAN PLATE TANK

You keep to the time and temperature specified and the Eastman Plate Tank keeps to the results desired. Fog-free negatives—negatives in which all the possibilities of every exposure are realized to the full—are the rule that is never proved by exceptions. In short, the Eastman Plate Tank does for plates precisely what the Kodak Film Tank does for films—it offers the easy, sensible method to successful negative developing.

The Eastman Plate Tank consists of a metal solution cup with cover, a cage for holding twelve plates or less, and a loading fixture for loading the plates. The exposed plates are loaded in the cage and then placed in the solution cup previously filled with developer, whereupon the cover is clapped on. Obviously the loading must be done in the dark-room because of the sensitiveness of the plates to light; but with the cover of the solution cup in place, the tank may be brought into broad daylight until the expiration of the fifteen minutes necessary for proper development. The plates are then unloaded in the dark-room, the developer washed from the plates, and they are fixed and washed in the usual manner.

The presence of the dial with adjustable pointer on the face of the tank, offers a convenient method of checking time of development.

THE PRICE

Eastman Plate Tank, for 4x5, 3¼x5½, and smaller plates, includes solution cup, plate cage, loading fixture and adjustable kit, - - - - -	$4.00
Ditto, 5x7, without kit, - - -	5.00

There is a definite temperature at which any photographic solution does its best work—the formula specifies it—

Eastman Thermometer

assures it.

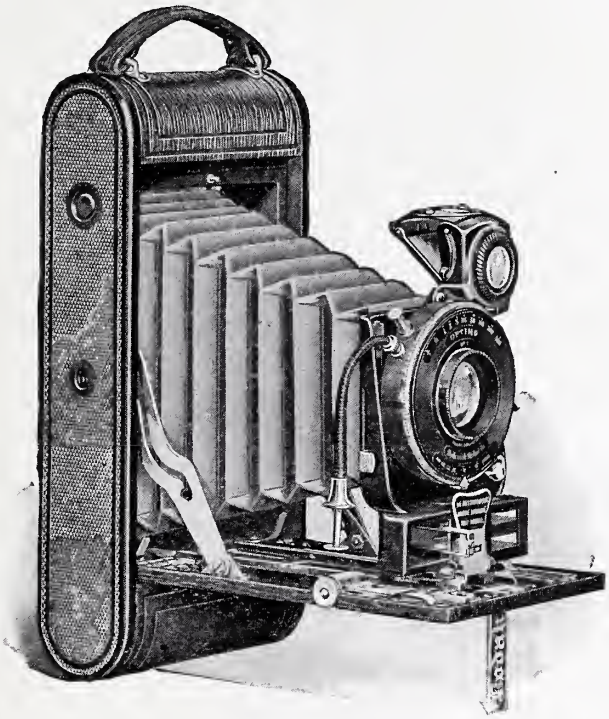
Convenient for either tank or tray development although particularly adapted to the former because of its hook top and curved back.

Price, $0.75

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

At your dealer's.

The Kodak Range Finder finds the focus.



No. 1A Autographic Kodak *Special*

with Kodak Range Finder

High-speed anastigmat lens, Optimo shutter and autographic attachment indicate what the presence of the Kodak Range Finder proves—the 1A *Special* represents all that is best and *newest* in pocket camera construction and equipment.

Picture size, 2½ x 4¼ inches.

THE PRICE

With Optimo shutter and Kodak Anastigmat lens, *f.* 6.3 -	$50.00
Ditto, with B. & L. Kodak Anastigmat, *f.* 6.3 - - -	59.50
Ditto, with B. & L. Tessar Series IIb Anastigmat lens, *f.* 6.3	70.50

EASTMAN KODAK COMPANY,

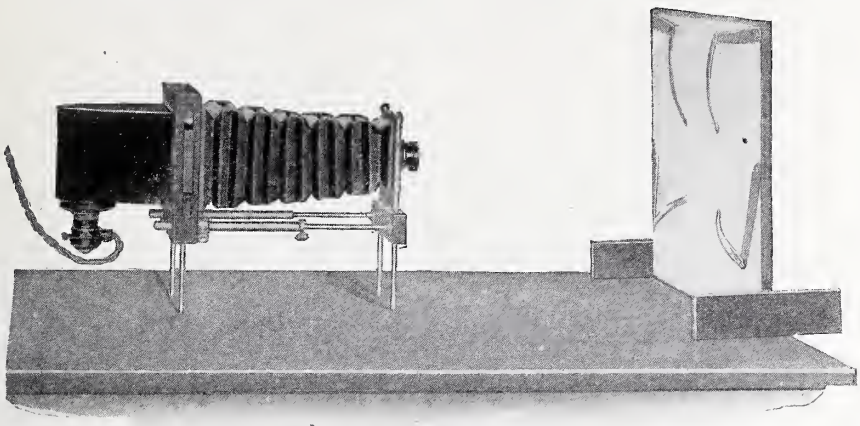
ROCHESTER, N. Y.

This picture made with a Kodak, Eastman Flash Sheet and Kodak Flash Sheet Holder is an indication of what any amateur can accomplish with similar equipment.

Eastman Flash Sheets burn without excessive glare, and the Kodak Flash Sheet Holder makes their use simplicity itself.

The price of the Kodak Flash Sheet Holder is $1.00.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.



It is easy to enlarge your own with the

Kodak Enlarging Outfit

Enlargements up to the size of the easel, 14 x 17 inches, may be made from any negative sized 4 x 6 inches or smaller —and the outfit is compact enough to operate successfully on table or shelf.

THE PRICE.

Kodak Enlarging Outfit, supplied complete with lens and diaphragm, largest opening U. S. 4, but not including the 60 Watt Mazda lamp for use in the illuminator, - - - - - - - - $15.00

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

At your dealer's.

The Kodak Portrait Attachment

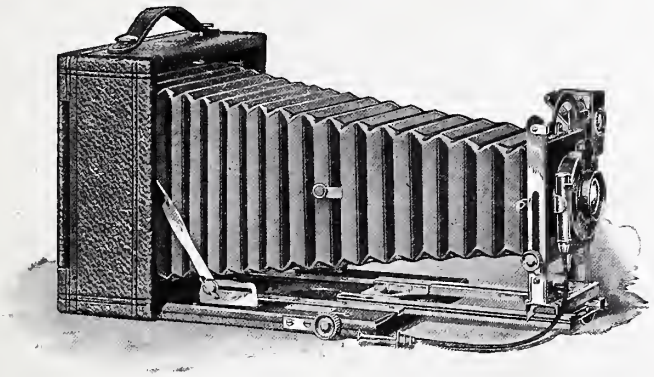
slips on over the regular lens equipment and enables you to bring your Kodak within arm's length of the subject to be photographed. The result is a large image direct.

The name indicates that it is of particular value in making impromptu portraits.

Price, fifty cents.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

A Camera of Wide Adaptability



Premo No. 9

The long bellows draw permits the close approach required in copying, and accommodates, as well, a long focus lens, that will render true perspective.

The Swing Bed, Reversible Back, and Rising and Falling Front, provide for the correct photographic reproduction of architectural subjects, and are helpful when making general views.

The Ground Glass Screen, and the Rack and Pinion, provide for accurate composition and focus.

The Premo No. 9 is made in three sizes—4x5, 3¼x5½ and 5x7, and Film or Plates may be used with equal facility.

Premo Catalogue free at your dealer's, or by mail.

ROCHESTER OPTICAL DEPARTMENT

EASTMAN KODAK COMPANY ROCHESTER, N. Y.

GRAFLEX

The Camera of Precision

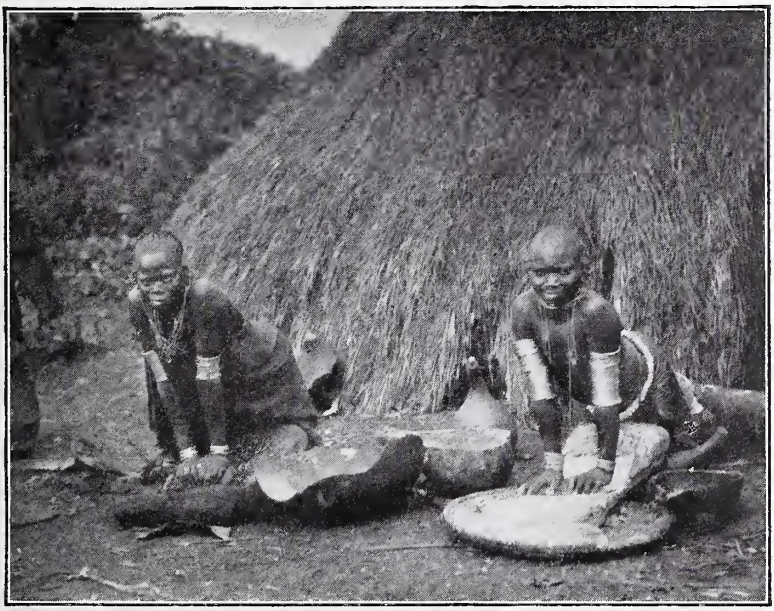
The Composition and Focus are both under control up to the instant the shutter is released, and are shown in the full picture size, right side up.

Exposures suitable to an almost unlimited variety of subjects may be chosen from the twenty-four automatic speeds, ranging from $\frac{1}{10}$ to $\frac{1}{1000}$ second, available with the Graflex Focal Plane Shutter.

Ask for the 64 page Graflex Catalogue, free at your dealer's or by mail

FOLMER & SCHWING DEPARTMENT

EASTMAN KODAK COMPANY ROCHESTER, N. Y.



(Photo by C. E. Akeley—copyright)

A Wheatless Day in Darkiest Africa

—a situation calling for plenty of illumination. But whether the object be near or distant, you'll get sure satisfaction from the perfection of the

Bausch and Lomb Photographic Lenses

The wide scope of the Bausch & Lomb line of high-grade Photographic Lenses makes it possible for both amateur and professional to find here the one type of lens best fitted for their requirements.

For great speed, under favorable or unfavorable light conditions, the Tessar series—Ic for cameras of the reflecting type, and IIb for the more compact hand cameras. On miniature cameras the short focus Tessar Ic gives remarkable depth without loss of speed. For all-around service where a maximum of speed is not essential, the Convertible Protar VIIa, adaptable for groups, landscapes, machinery, and even for wide angle work. Also lens sets for advanced work, Wide Angle Lenses, and our many well-known accessories.

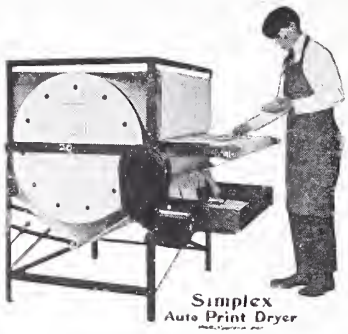
Our Booklet, "What Lens Shall I Buy?" will interest you. Write for a copy.

Bausch & Lomb Optical Co.

624 ST. PAUL ST., ROCHESTER, N. Y.

NEW YORK WASHINGTON CHICAGO SAN FRANCISCO

Leading American Makers of Photographic and Ophthalmic Lenses, Projection Lanterns (Balopticons), Microscopes, Binoculars and other High-Grade Optical Products.



DOES THE WORK RIGHT

SAVE SPACE—SAVE TIME

INCREASE YOUR OUTPUT THREEFOLD

The Simplex Auto Print Dryer gives you 81,000 square inches of drying surface per hour. It dries prints in three minutes and costs the same as an electric fan, or less than half a cent per hour. Made entirely of steel except the rollers and apron. It is always ready for use and always in good working order. :: :: :: ::

Send for circulars and prices, either to

Simplex Photo Specialty Co. 337-339 East 34th Street New York, N. Y.

OR TO

Howland & Dewey Company, Trade Agents

810 South Broadway — Los Angeles, California

DEFENDER PRODUCTS

The difficulty experienced by the Defender Photo Supply Co., Inc., in maintaining complete stocks in their branches at San Francisco and Los Angeles, made it advisable to discontinue these distributing points. Our customers on the Coast are referred to the following concerns who carry the complete Defender line :

BLUMAUER-FRANK DRUG CO.
355 EVERETT STREET
PORTLAND, ORE.

WESTERN WHOLESALE DRUG CO.
2ND & LOS ANGELES STS.
LOS ANGELES, CALIF.

ARGO PAPER
FOR THE AMATEUR PHOTOGRAPHER

VULCAN FILM
PROVEN PERFECT

ARGOTONE
PERFECT PORTRAIT PAPER

ENLARGING ARGO
ENLARGEMENTS LIKE CONTACT PRINTS

DISCO (P.O.P.)

MONOX (BROMIDE)

OLLO PAPER
FOR THE COMMERCIAL PHOTOGRAPHER

DEFENDER PHOTO-PURE CHEMICALS AND CHEMICAL PREPARATIONS

WRITE US FOR THE NEW DEFENDER CATALOGUE

DEFENDER PHOTO SUPPLY CO. INC.

ARGO PARK - ROCHESTER, N. Y.

CHICAGO NEW YORK BOSTON

PATENTS

Send sketch and description for Useful Booklet and Free Advice as to patentability.

MAXWELL STEVENSON
Attorney in Patent Causes

905 Victor Building Washington, D. C.

AIR BRUSH FOR ART WORK

We're doing business at the old stand making and selling more than ever of the **BEST ART TOOL** in the line for good work. Send for circulars to-day and learn of its many uses.

AIR BRUSH MFG. COMPANY
72 Nassau Street Rockford, Ill., U. S. A.

For More than

THIRTY-FIVE YEARS

CRAMER PLATES

Have Maintained Their Leadership

What Could Better Prove Their Superiority?

G. CRAMER DRY PLATE CO.

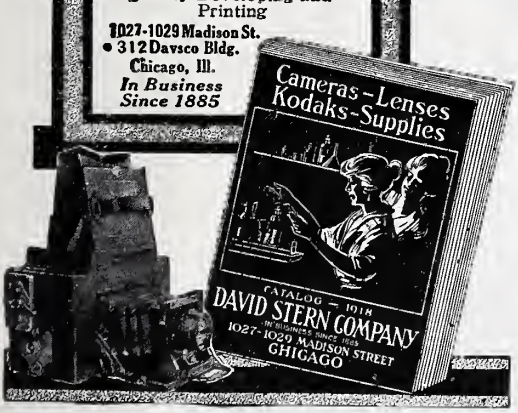
"QUALITY FIRST"

CHICAGO ST. LOUIS NEW YORK

Write For This Camera Catalog Today

SAVE 10% to 50% on all Cameras. Send for this 1918 Book, illustrating the newest models—all standard makes—lowest prices.

DAVID STERN COMPANY
"Everything in Cameras"
Quality Developing and Printing
1027-1029 Madison St.
• 312 Davsco Bldg.
Chicago, Ill.
In Business Since 1885



Do You Understand Flashlight?

FLASHLIGHT, once thought to be useless for portrait photography, is now being used by the leading photographers everywhere in making their highest priced pictures.

This change has been brought about by recent marvelous improvements in flashlight equipment until to-day better quality pictures can be made with one of our Portrait Flash Lamps than by the use of daylight under the most perfect skylight, to say nothing of their innumerable advantages otherwise.

HALLDORSON

Home Portrait Flash Lamps

We prove this in our folder, "Do You Understand Flashlight?" and illustrated pamphlet—both free.

Write for these at once.

The Halldorson Co.
1772 Wilson Ave.
Chicago

Halldorson Home Portrait Flash Lamp No. 2

Please Mention Camera Craft when Corresponding with Advertisers.

Made by Amateur with One No. 12 Actino

SUCCESS ALWAYS

attends the use of the
instantaneous

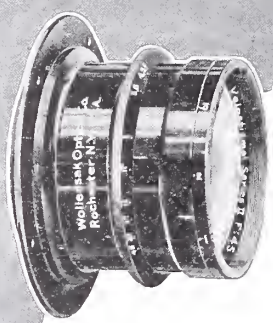
Actino Flash Cartridges

in photographing your pet animals, as well as your "kiddies" and friends with ***eyes*** naturally rendered. Such results are

ABSOLUTELY IMPOSSIBLE WITH FLASH SHEETS

or with any slow burning powder. ***Demand Actino*** from your dealer and ***get results.***

Put up by **J. H. Smith & Sons Co.** 3541 Cottage Grove Ave. Chicago, Ill.



A SERIES II

F 4.5

— WOLLENSAK

VELOSTIGMAT

Will make your speed camera 100% efficient

• • Let us tell you more about it. • •

WOLLENSAK OPTICAL CO.

ROCHESTER, N.Y.

LET THE USER JUDGE

A LENS FOR EVERY PURPOSE

ANSCO DELUXE CAMERAS, when fitted with Rodenstock's Anastigmats, are the model of perfection — a tribute to its originators.

Send for descriptive matter.

A 2 cent stamp will bring two valuable Exposure Meters— Regular and Graflex.

INSIST on getting **RODENSTOCK ANASTIGMAT LENSES**

W. J. LAFBURY CO.
305 N. 5th Ave.-Chicago

A BINDER FOR CAMERA CRAFT

You can bind your loose copies of Camera Craft into a permanent form with the aid of our "Big Ben" binder. "Big Ben" is a handsome, gold-stamped cover, strong and durable, and will hold a dozen issues securely and neatly. We have a supply on hand and will be glad to send you one on receipt of a dollar bill. Simply enclose the money and say: "Send me 'Big Ben' binder for Camera Craft."

Camera Craft, Claus Spreckels Bldg. **San Francisco**

Please Mention Camera Craft when Corresponding with Advertisers.

Prosch's SUNLITE Flash Powder

SOME professionals do not know where to get the BEST Powder. Their dealer sends what ***he*** likes, unless ***Cartridges*** are ordered. He ***has*** to get these from us as we own the patents. They would get Prosch's SUNLITE if they ***demanded*** it. That they do not get it isn't our fault. Nor is the Powder to blame. It never got the chance to prove its superiority.

We claim that SUNLITE is the World's BEST. You can demonstrate this ***practically,*** yourself. If getting perfect negatives be an object you will order a trial lot now. Altho worth a premium, you can buy it for the same price as others.

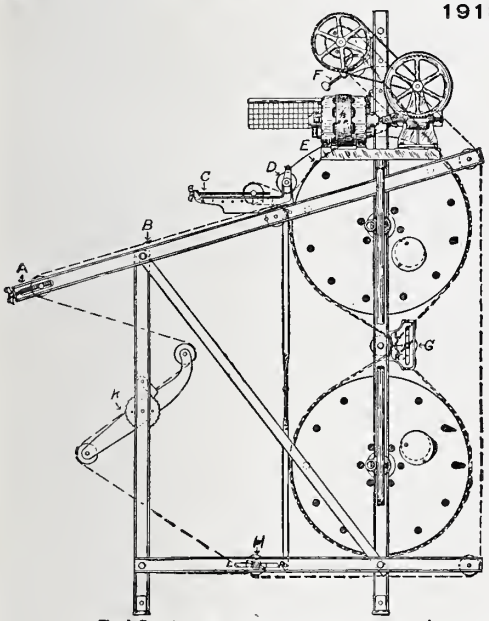
No extra-hazardous chemicals are used. We manufacture in our factory, and employ only skilled chemists. Once you try SUNLITE you'll not need to be coaxed into adopting it. If your dealer will not supply, he can not resent your ordering a fresh lot direct. The point is, TRY IT NOW.

PROSCH MANUFACTURING CO., INC. **334 FIFTH AVENUE, NEW YORK**

DUPLEX ROTARY AUTOMATIC

PRINT DRYER

1918 MODEL



End Section of Duplex Rotary Automatic PRINT DRYER

WHAT IT IS

The Only Two-Cylinder Drying Machine.
Has Large Capacity and High Efficiency.
Built of Metal, Strong and Very Rigid.
Driven by 1/15 h. p. Gen. Electric Motor.
Both Drying Belts Always Kept Tight.
Simple Adjustment by Two Guide Rollers.
Vertical Form Gives Great Heat Economy.
Superposed Cylinders Secure Compactness.
Automatic Operation Saves Labor Cost.

A Positive Necessity In Every Plant.

WHAT IT DOES

Eliminates All Your Drying Problems.
Speeds Up All Your Drying Processes.
Dries Prints Perfectly in 3½ Minutes.
Takes Prints up to Sixteen Inches Wide.
Takes Prints of Any Length—Unlimited.
Delivers Prints Either Flat or Curved.
Cannot Injure the Most Delicate Surface.
Heat is Always Under Perfect Control.
Produces Superior Quality of Prints.

Will Pay For Itself In Six Months.

Write for Booklet to

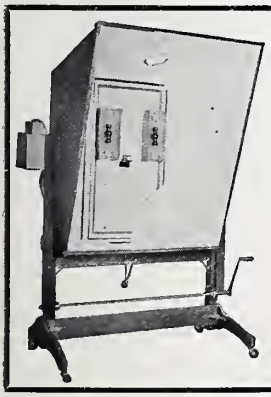
HERBERT & HUESGEN CO.

(Sole Agents)

18 East 42nd St. **New York City**

BURKE & JAMES, Wholesale Distributors, Chicago, Ill.

FOR SALE BY DEALERS IN PHOTOGRAPHIC SUPPLIES



THE GREATEST NEED

of every portrait studio, is an absolutely ***dependable, controllable, economical and instantaneous*** artificial light for producing results which cannot be distinguished from work made under a skylight, with ideal conditions.

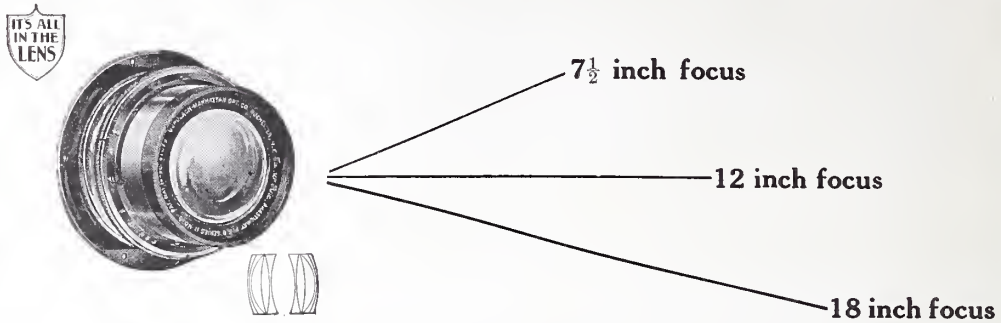
THE VICTOR STUDIO FLASH CABINET

IS THE *ONLY* SUCH LIGHT EVER PRODUCED.

No form of electric light ever has, or ever can by any possibility, meet ***fully*** the studio necessities of eliminating re-sittings, with their consumption of time and plates, because of moves, loss of expression and errors in timing. Nothing but a ***flash*** of 1/35th of a second can do that. *Send for descriptive booklet to*

JAS. H. SMITH & SONS CO. **3541 Cottage Grove Ave. Chicago, Ill.**

CONVERTIBLE MEANS THREE FOCAL LENGTHS



THE USE OF AN ANASTIGMAT LENS

sharpens the picture and shortens the exposure. To be without one is a handicap, a limitation the photographer cannot overcome, often meaning the difference between success and failure.

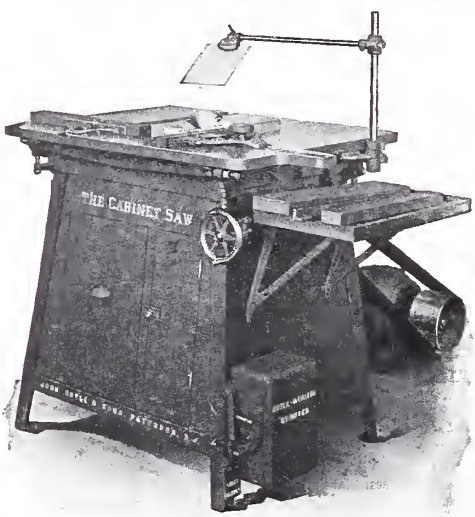
The Convertible Turner-Reich Anastigmat F 6.8

is an ideal lens for general use, the lens which represents the Anastigmat in its highest development. This is the lens which theoretically and practically is as near perfection as the optician conceives it should be, as near a universal lens as the photographer can hope to obtain.

PLEASE SEND FOR CATALOGUE

GUNDLACH-MANHATTAN OPTICAL CO. 766 CLINTON AVENUE, SOUTH ROCHESTER, N. Y.

AMONG PHOTOGRAPHERS



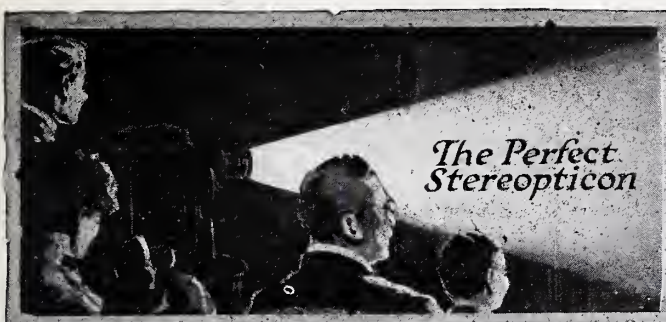
Making photo-engraved plates there is a noticeable demand for the Royle Machines. Recent customers include a photo-supply house of international standing. The expertly proved designs and conveniences fully meet the most exacting requirements.

Write for Booklet 278.

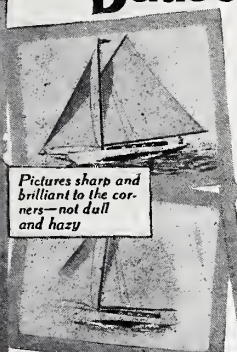
JOHN ROYLE & SONS, Paterson, N. J.

PHOTO-ENGRAVERS' MACHINERY

Pacific Coast Agents: Geo. Russell Reed Co., San Francisco, Calif.



THE
Bausch and Lomb BALOPTICON



Pictures sharp and brilliant to the corners—not dull and hazy

Type like this—not like zidt

To the amateur photographer, the Balopticon offers exceptional opportunities for display of prints, whether in public or in private. It dispenses with the bulky old album, and substitutes an adequate means of showing your pictures to best advantage—and to a whole roomful at once.

You can project direct from prints or from slides as you prefer. Safe and simple for anyone to operate—and the new gas-filled Mazda lamp gives perfect illumination at low current cost. Models for lantern slides, **$31.50** up; for prints, post cards, maps, etc., **$42.00** up; for combination of both, with *instant* interchange, **$55.00** up.

Write for interesting free booklet on the "Home Balopticon."

Bausch & Lomb Optical Co.

562 St. Paul Street Rochester, N. Y.

New York Washington Chicago San Francisco

Leading American Makers of Microscopes, Projection Lanterns (Balopticons), Photographic and Ophthalmic Lenses, Stereo-Prism Binoculars and Other High-Grade Optical Products.

THE
CENTRAL
DRY PLATE COMPANY

Announce their removal to their new, fully equipped modern factory. Built for —and devoted exclusively to—the manufacture of

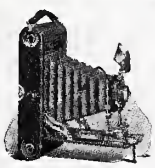
STANDARDIZED PHOTOGRAPHIC PLATES

FOR

Amateur Professional and Commercial Workers

Central Dry Plate Company

BENAVIS, ST. LOUIS, MO.



Are You Looking For Bargains?

Hundreds of up-to-the-minute

CAMERAS, KODAKS AND LENSES

both used and new, at startling reduced prices, are listed in our latest free

BARGAIN BOOK & CATALOG

At least one outfit listed to suit your special requirements, and every item is backed by our

10 Day Free Trial Guarantee or Money Back In Full If Unsatisfactory

Could anything be fairer or squarer?

"A FEW USED BARGAINS"

$27.50 No. 2 Ansco Vest Pocket camera, f-6.3 anastigmat lens $19.75
$120.00 3A Compact Graflex, 5x7 IC Tessar f-4.5 lens $93.50
$42.50 No. 1 Ingento Special with Collinear Ser. 3, f-6.8 lens in Compound shutter, new $35.25
$65.00 3¼x4¼ Popular Pressman camera, Aldis f-4.5 anastigmat lens..... $46.50
$7.00 1A Folding Brownie Camera..... $4.25
$79.00 1A Graflex Camera, Zeiss f-6.3 anastigmat lens $52.50
$22.50 3A Eastman F. P. Kodak..... $12.50

Central Camera Company

Dept. B-10 124 S. Wabash Ave., Chicago

Insist on the 1918 Model "PACO" Dryer

MECHANICALLY RIGHT — A CHILD CAN RUN IT

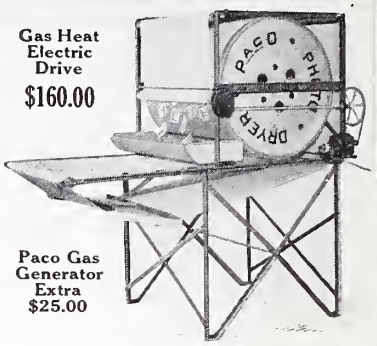
ONLY ONE ADJUSTING SCREW ON ENTIRE MACHINE

Designed and built by practical photo-finishers.
Every machine rigidly tested before shipment.
Takes prints as fast as experienced operator can place them on the apron.
Satisfaction guaranteed—ask any "PACO" user.

Sold Only by Leading Photo Supply Houses

PHOTOGRAPHIC APPLIANCES CORPORATION
116 South 4th Street — MINNEAPOLIS, MINN.

Gas Heat
Electric Drive
$160.00



Paco Gas Generator Extra $25.00

THE MOST ADVANCED TYPE OF SHUTTER

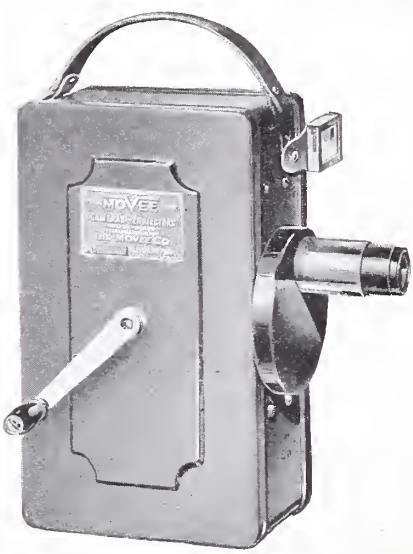
"Use an Ilex and avoid shutter trouble." Write today for our free catalog

IN THE PHOTOGRAPHIC WORLD

Showing the Famous Ilex Gear Combination for governing the slower and higher speeds

ILEX OPTICAL COMPANY, 783 Ilex Circle, ROCHESTER, N. Y.

Motion Picture Photography



The Movee Camera and Projector, complete, using standard size film, **$35.00**

No Longer An Experiment

Has proven its value far beyond expectations, and has placed photography on a high standing in art and commerce.

Own a Motion Picture Camera, now that you have the opportunity.

Make Motion Pictures for profit and pleasure by using our simple Movee methods.

Order from your dealer or write direct to the factory, for booklet.

The MOVEE Company

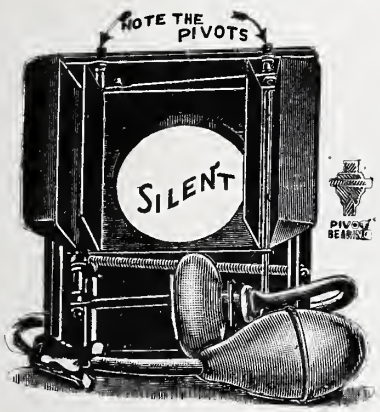
27 Noble Court
Cleveland, Ohio

GOERZ

IT'S STILL UNSURPASSED

TO-DAY there are many new cameras and lenses on the market. Competition is keen; outfits are being duplicated and imitated to an ever-increasing extent. Nevertheless, the **ANSCO V. P. SPEEDEX** equipped with a **GOERZ DAGOR F:6-8** in Compound or Ilex high-speed shutter is still unsurpassed in practical efficiency, portability and real service. The **GOERZ DAGOR F:6-8** has never been surpassed as one of the finest all-around anastigmats ever constructed—it meets every up-to-the-minute photographic requirement. The **ANSCO V. P. SPEEDEX** is the only camera of its kind—it embodies the best in American camera-manufacture. We can furnish the **ANSCO V. P. SPEEDEX** with **GOERZ DAGOR F:6-8** direct, although your dealer should be able to supply you from his stock. We have interesting catalogs and folders that tell about **GOERZ LENSES, GOERZ CAMERAS,** and other well-known cameras equipped with **GOERZ LENSES.** Let us have your name and address to-day.

C. P. GOERZ AMERICAN OPTICAL COMPANY
321 EAST 34TH STREET : NEW YORK CITY



NOTICE HOW SIMPLE THEY ARE MADE

"Silence Is Golden"

The professional photographer appreciates the advantage of a silent shutter. When that desirable feature is combined with a simple and scientific construction, one doing away with all cogs, ratchets, valves, scraping wings, and the like, one then has the ONLY SILENT STUDIO SHUTTER. It "opens without a sound"

They are patented and made only by us. Be sure your order reads S-I-L-E-N-T, and accept no other. For sale by all jobbers. Its best recommendation thousands of satisfied users.

MANUFACTURED ONLY BY

Conley Camera Company

Rochester, Minnesota

HIGGINS' PHOTO MOUNTER PASTE

The kind you are sure to use with continuous satisfaction

AT DEALERS GENERALLY

CHAS. M. HIGGINS & CO.

BRANCHES: CHICAGO, LONDON

MANUFACTURERS
271 Ninth St., Brooklyn, N. Y.

PROBUS

A PERMANENT BLACK FINISH
Acid, Alkali and Water-Proof

INDISPENSABLE IN DARKROOM AND WORKROOM.

Used and recommended by the leading
Photographic Studios, Commercial Finishers, Motion Picture and X-Ray Laboratories.

Is an ideal coating for trays, tanks, sinks and fixing boxes of all kinds. For painting darkroom walls, shelves and floors; water-proofing home-made trays, etc.

Manufactured expressly for photographic purposes. Easily applied, dries quickly. No dirt —no muss. Half-pint trial tin costing only 35 cents will save you almost as many dollars.

Pint 65c Quart $1.00 Half Gal. $1.65
One Gallon $3.00 Five Gallons $13.50

ALL DEALERS

WOLFF & DOLAN
MANUFACTURERS
220 Post Street San Francisco

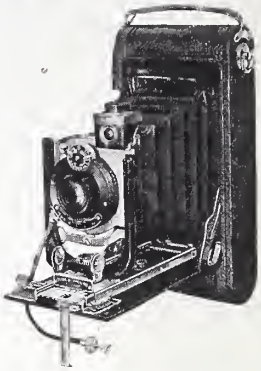
"Every Click a Picture"
A Slogan Worth Remembering

REXO RECORD FILM

Insures Higher Percentage of Good Negatives

Here Are Reasons Why

Speed—25% More.
Grain—Extremely Fine.
Gradation—From white to black with all intervening middle tones.
Color Correct—Produces in the picture the true relative tone values as the eye sees them.
Made in all sizes fitting all cameras.



Write for the Rexo Book, describing

REXO CAMERAS

Film, Paper and Supplies needed by every amateur photographer.

Burke & James Inc
CHICAGO NEW YORK

Every photographic requirement is met by

HAMMER PLATES

Each plate in every box equals the best in any box.

Hammer's Special Extra Fast (red label) and Extra Fast (blue label) Plates for field and studio work and Hammer's Extra Fast Orthochromatic and D. C. Orthochromatic Plates for color-values.

Hammer's little book, "A Short Talk on Negative Making," mailed free.

Hammer Dry-Plate Company

Ohio Ave. and Miami St. **St. Louis, Mo.**

AMERICA'S MODERN CAMERA EXCHANGE

BASS BARGAINS

Graflex & Reflex — Quality Service — Vest Pocket Cameras

109 N. DEARBORN ST., CHICAGO

Read These Bargains

A VALUABLE CAMERA SERVICE

The Integrity of a House is ***Reflected*** in its Catalog and Demonstrated by its Service.

CONSERVE RAW MATERIALS!

Buy a Bass Tested and Guaranteed Used, but ***good as new Camera.*** Save money! Bass offers everything good in photography, new or used. "The Hard to Get Cameras" our specialty.

SPECIAL VALUES FOR THE MONTH

3A Graflex, Roll Film, B. & L. Zeiss Kodak Anastigmat F:6.3 lens, List price $112.00. **Our price $65.00.**

3¼x4¼ Mentor R.B. Telescopic Reflex, 6¾ in. Aldis F: 4.5 lens, 6 holders, F. P. Adapter and case. List price $135.00. **Our price $85.00.**

3A Rexo Special DeLuxe, fitted with Goerz Dagor F:6.8 lens in Ilex Acme shutter, latest mod. List price $80.00. **Our price $62.00.**

12 Busch Terlux, Day and Night Prism Binoculars and Case. List price $125.00. **Our price $85.00.**

10 DAYS' FREE TRIAL!
Money - Back Guarantee on Everything!

6½x8½ Velostigmat, Ser. 11 F:4.5 in Regno shutter with extra barrel. List price $88.00. **Our price $64.00.**

3¼x5½ Premo No. 9, fitted with B. & L. Tessar Ser. IC F:4.5 lens in Compound shutter, case, 4 holders and F. P. Adapter. List price $95.00. **Our price $65.00.**

The No. 1 Autographic Special, Cooke F:6.3 lens in Optimo shutter (used). List price $36.00. **Our price $28.50.**

5x7 Auto Graflex, 5x8 (8½ inch) B. & L. Tessar Ser. IC F:4.5 lens, 3 holders. List price $161.00. **Our price $125.00.**

Premo No. 12, fitted with B. & L. Tessar Ser. IC F:4.5 lens in Optimo shutter, F. P. Adapter, 3 holders. List price $62.00. **Our price $45.00.**

Ansco No. 3 V. P., B. & L. Tessar Ser. IC F:4.5 lens in Ilex Acme Shutter. List price $57.50. **Our price $50 00.**

3¼x4¼ Latest Model R B. Auto Long Focus, 7½ inch Tessar Series IC F:4.5 lens. List price $158.50. **Our price $137.50.**

LIBERTY BONDS ACCEPTED SAME AS CASH

BASS WILL TAKE YOUR OLD CAMERA IN TRADE

MOTION PICTURE CAMERA SPECIALISTS

Fairest valuation for your apparatus. Must be in good condition. We can use Graflex, Kodaks, Ansco, Ensign, Newman & Guardia, Marion, Ross, Adams, ICA's Zeiss, Goerz and other high grade makes. You can apply the value of your camera or lens on the outfit you want.

FREE THE BASS BOOK OF 1001 BARGAINS

and BARGAIN LIST No. 5. The Bass lists are the Blue Books of Photographic supplies and cameras, new and used. We are direct Kodak Agents, also every other good makers products. Chock full of splendid Bargains and supplies. Send for your copies now. Send to America's Modern Camera Exchange. Get a Bass Guaranteed and Tested, Slightly Used, but **good-as-new CAMERA BARGAIN.** Don't take chances! Stop paying high prices! This store is America's greatest clearing house for unlimited bargains in photographic goods of **KNOWN QUALITY.**

BASS CAMERA CO., Dept. K, 109 N. Dearborn Street, Chicago, U. S. A.

Gentlemen: Please send me your two books, I want them as per your free offer.

Name _____ *City* _____

Address _____ *State* _____

Portrait by Hartsook, California

taken with

Northern Light No. 1 Price complete $68.00

NORTHERN LIGHTS are supplied in five different models suitable for every use—from studio photography and motion pictures, to home portraiture using an ordinary house circuit (7½ amperes).

Catalogue upon request.

SIMPLEX PHOTO PRODUCTS CO. Richmond Hill, L. I., N. Y.

If it isn't an Eastman,

it isn't a Kodak.

Every article of real merit sells best under its real name.

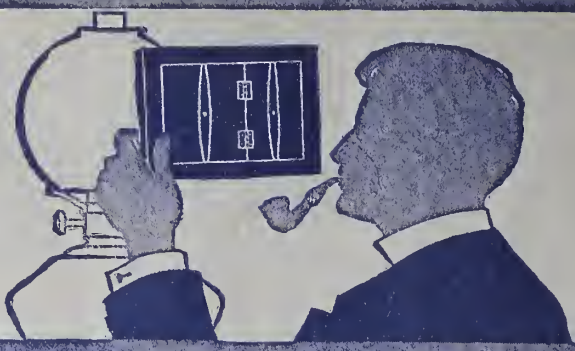
If it is genuinely good the salesman has no reason to camouflage its identity by giving it the name of a competing article.

When you ask at the store for a Kodak camera, or Kodak film, or other Kodak goods and are handed something not of our manufacture you are not getting what you specified, which is obviously unfair to you.

"Kodak" is our registered and common-law trade-mark and cannot be rightly applied except to goods of our manufacture.

EASTMAN KODAK COMPANY,

ROCHESTER, N. Y.



Prints by Gaslight

The best print you can get on

VELOX

is the best print you can get.

NEPERA DEPARTMENT
EASTMAN KODAK COMPANY
ROCHESTER, N Y., *The Kodak City.*

At your dealer's.